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**"AS-BUILT" DESIGN SPECIFICATION
FOR
PRODUCTION FILM CONVERTER GAINS AND BIASES PROGRAM
(PFCGAB)**

Job Order 71-695

(TIRF 76-0081)

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FOR PRODUCTION FILM CONVERTER GAINS AND
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Prepared By

**Lockheed Electronics Company, Inc.
Systems and Services Division
Houston, Texas**

Contract NAS 9-15200

For

**EARTH OBSERVATIONS DIVISION
SCIENCE AND APPLICATIONS DIRECTORATE**



**National Aeronautics and Space Administration
LYNDON B. JOHNSON SPACE CENTER
Houston, Texas**

November 1977

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1. SCOPE

The "As-built" Design Specifications for the Production Film Production Film Converter Gains and Biases Program (PFCGAB) are the subject of this document.

PFCGAB is a batch-input stand-alone program, programmed in the Univac Fortran V language, for operation under the EXEC II operating system on the Univac 1108 computer.

The program was developed for the Earth Observations Division (TF) of NASA-JSC. The program requestor and source of requirements was Mr. Richard Nance (TF3).

2. APPLICABLE DOCUMENTS

The following documents, of issue shown, are pertinent to the authorization for development and requirements for the PFCGAB program.

- Requirements for a Computer Program to Investigate PFC Gains and Biases, by Richard Nance (TF3) (No date)
- Action Document 2640: changes to PFCGAB, originated by R. L. Nance (TF3) (No date)
- LEC Interdepartmental Communication 643-1447, dated 9/28/76: Subject: Modifications to Gains and Biases Program
- TIRF 76-0081

3. SYSTEM DESCRIPTION

A computer program, the Production Film Converter Gains and Biases program (PFCGAB), is described in following sections.

3.1 HARDWARE DESCRIPTION

PFCGAB is operational on the Univac 1108 computer, with the EXEC2 operating system. The program may be made completely compatible with operation on the Univac 1110 and the EXEC8 operating system, with a simple conversion of the EXEC2 PCF (Program Complex File) to an EXEC8 PF (Program File) as documented in the IDSD Procedures Manual, Part 20.

3.2 SOFTWARE DESCRIPTION

The program consists of a main element, PFCGAB, and twelve subprograms: IDHEAD, COVER, PRSTAT, PRXHIS, PFCHIS, PRPCT, PRGAB, TAPERD, UNPK8, UNPACK, TAPLAB, and BYTRAN.

PFCGAB and the first 10 subprograms named are programmed in the Univac Fortran V language. The last two subprograms, BYTRAN and TAPLAB, are programmed in the Univac assembly language SLEUTHII.

3.2.1 SOFTWARE COMPONENT NO.1 (PFCGAB)

PFCGAB (Production Film Converter Gains and Biases) is a program developed for the purpose of computing alternative gains and biases to be used by the PFC (Production Film Converter) when processing LACIE (Large Area Crop Inventory Experiment) images. The program is designed to input LACIE images from tape, and will accept either a GSFC (Goddard Space Flight Center) "CCT" LACIE image tape or ERIPS (Earth Resources Information Processing System) "merge" tape containing LACIE image(s). The program presumes 4-channels per image (ERTS acquisition).

3.2.1.1 Linkages

PFCGAB is the main element. PFCGAB calls the following subprograms:

(1) An assembly language subprogram, TAPLAB, to provide the label of the input tape(s); (2) TAPERD, a Fortran V subprogram which reads the header information and image data from the input LACIE image tape(s); (3) PRXHIS, a Fortran V subprogram which prints the histogram (frequency distribution) of pixels (radiance values) in the LACIE image, (4) PRSTAT, a Fortran V subprogram which prints 4-channel statistics computed over the 5x6 nautical mile sample segment area and the 10x11 nautical mile search area, (4) PRPCT, a Fortran V subprogram which prints a 4-channel tabulation of percentages of pixels, (6) PFCHIS, a Fortran V subprogram which prints a 4-channel histogram (frequency distribution) of PFC grey-shade levels (1-16) versus the number and percentage of pixels in the 5x6 nm sample segment area which are assigned to each grey-shade level, derived using the search area (10x11 nm) gains and biases A1, B1, and (7) PRGAB, a Fortran V subprogram which prints the 29 gains and biases derived in the main program PFCGAB.

3.2.1.2 Interfaces

PFCGAB interfaces with subprograms TAPLAB and TAPERD (entry points TAPHDR, FLDINT, and LINERD) by means of calling arguments. PFCGAB interfaces with the five output subprograms PRXHIS, PRSTAT, PRPCT, PFCHIS, PRGAB - by named common blocks: ALL, PFCH, PCENT, FREQ, HDATA, STCOMP, ST1011, ST5x6, PGLABL.

3.2.1.3 Inputs

Both card and tape input are required by PFCGAB.

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Tape input is required to be assigned to Univac logical unit A (Fortran unit 1). Tape input is required to contain LACIE images either as provided on the LACIE (Large Area Crop Inventory Experiment) image tapes sent to JSC (Johnson Spacecraft Center) from GSFC (Goddard Space Flight Center) on "CCT" ("Computer compatible Tape") or as provided from an ERIPS (Earth Resources Image Processing System) "merge" output of LACIE images to tape. The format of the tapes may either be Universal format or LARSYS II format. The program will accept and process multi-file tapes.

Card input is expected by the program. Card input is required to be in Fortran V "NAMELIST" format. The "NAMELIST" name for the input is "\$CARDIN."

The parameters to be card-input are described in Section 4.0, Program Operation.

3.2.1.4 Outputs

PFCGAB utilizes the printer for all output. Output consists of five tabulations. All tabulations are 4-channel. The output is as follows:

(1) A frequency distribution of pixel (radiance value) versus number and percentage of 5x6 nm sample segment area pixels having each radiance value, (2) basic statistics for the 5x6 nm sample segment area (minimum radiance value, maximum radiance value, radiance value range, arithmetic mean (P2), standard deviation (S2), mean deviation, median, and mode. The 10x11 nm search area statistics output are the arithmetic mean (P1) and standard deviation (S1), along with the search area gain (A1) and second bias (B1). (3) A tabulation of the percentage of 5x6 nm sample segment area pixels which exceed a radiance value of 60, 90, 60-sun angle corrected, 70-sun angle

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corrected, 80-sun angle corrected, and 90-sun angle corrected. (4) A frequency distribution of the PFC grey-shade levels (1-16) versus the number and percentage of 5x6 nm sample segment area pixels assigned to each PFC grey-shade level, using the search area gain and bias (A1, B1). (5) A print-out of all 10x11 nm search area and 5x6 nm sample segment area gains and biases derived by PFCGAB.

If more than 4 channels are processed (i.e., ERIPS "merge" images), the output tabulations are by 4-channel increments-i.e., channels 1-4, 5-8, 9-12, etc.

All output is labeled such that the output variables are self-identified and self-explanatory.

3.2.1.5 Storage Requirements

The computer core-storage requirement for PFCGAB and all sub-programs is 5956 I-bank locations, 16728 D-bank locations, and 2647 locations for all 9 Named common blocks. Total core-storeage requirement is 25331 locations.

3.2.1.6 Description

PFCGAB presumes that the input images are LACIE images as provided to JSC from Goddard Space Flight Center, or as derived on ERIPS and output on an ERIPS "merge" tape. The program considers an "image" to contain 4-channel pixels, with 196 pixels per scan line, and 117 scan lines per "image." A maximum of 32 channels will be processed by the program; i.e., up to 8 "images," each "image" being a 4-channel image. This is the method used to process the ERIPS "merge" tapes with multiple LACIE acquisitions.

PFCGAB inputs LACIE images from tape, computes statistics (mean, standard deviation) for the 10x11 nautical mile search area and the 5x6 nautical mile sample segment area (mean, standard deviation, range, mean deviation, median, and mode), computes 5 gains and biases using 10x11 nm search area statistics, and computes 23 gains and biases using 5x6 nm sample segment area statistics.

The 10x11 nautical mile search area gain is A1, and the second bias is B1. A1 is either extracted from the input tape header for Goddard Tapes, or input via namelist "\$CARDIN" for ERIPS "merge" tapes. B1 is computed from the search area bias, B0, extracted from the Goddard tape header or input via "\$SCARDIN." B1 is computed as follows:

$$B1_i = B0_i / A1_i, i = \text{channel no.}$$

The 10x11 search area mean, P1, is computed as follows:

$$P1_i = -B1_i + 128/A1_i$$

The 10x11 search area standard deviation, S1, is computed as follows:

$$S1_i = \frac{42.666667}{A1_i}$$

The five gains, biases computed using 10x11 nm search area statistics (P1, S1) are: A9, B9, A10, B10, A24, B24, A26, B26, A27, B27. The 10x11 nm search area related gains and biases are computed as follows:

$$\begin{aligned} \frac{A9, B9}{A9_i} &= 256/(40S1_i) \\ B9_i &= (P1_i - 2S1_i) \end{aligned}$$

$$\underline{A10, B10} \quad A10_i = 256 / (5 S1_i) \quad i = 1, \text{ No. Channels}$$

$$B10_i = - (P1_i - 2.5 S1_i)$$

$$\underline{A24, B24} \text{ (truncated)}$$

$$A24_i = 8$$

$$B24_1 = (P1_1 - 16) * 8$$

$$A24_2 = 5$$

$$B24_2 = - (P1_2 - 26) * 5$$

$$A24_3 = 5$$

$$B24_3 = - (P1_3 - 32) * 5$$

$$A24_4 = 10$$

$$B24_4 = (P1_4 - 13) * 10$$

$$\underline{A26, B26} \text{ (Bands 1, 2, 4 dependent)}$$

$$P_{\text{new}} = \text{MEAN}_{\text{new}} = \frac{P1_1 + P1_2 + 2 P1_4}{3}$$

$$M = \text{MAX}[(P1_i + 3 S1_i - P_{\text{new}}), (-P1_i + 3 S1_i + P_{\text{new}})]$$

for i = channels 1, 2, and 4

where for i = 4, $P1_i = 2 * P1_i$

$$XHI = P_{\text{new}} + M$$

$$XLO = P_{\text{new}} - M$$

$$A26 = 256 / (XHI - XLO)$$

$$B26 = - XLO * A26$$

$$\underline{A27, B27} \text{ (Bands 2, 3, 4 dependent)}$$

$$P_{\text{new}} = \text{MEAN}_{\text{new}} = \frac{P1_2 + P1_3 + 2 P1_4}{3}$$

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$$M = \text{MAX}[(P1_i + 3S1_i - P_{\text{new}}), (-P1_i + 3S1_i + P_{\text{new}})]$$

for $i = 2, 3, 4$ and when $i = 4$, $P1_i = 2 * P1_i$

$$XHI = P_{\text{new}} + M$$

$$XLO = P_{\text{new}} - M$$

$$A27 = 256 / (XHI - XLO), B27 = -XLO * A27$$

The 5x6 nm sample segment area statistics are computed as follows:

for X_i = radiance value; channel i

NX_i = Number of pixels having radiance value X_i ;

N_{TOTAL} = Total number of pixels

$XMIN_i = X_{\min_i} = \text{MIN}[X_i] = \text{minimum radiance value, channel } i$

$XMAX_i = X_{\max_i} = \text{MAX}[X_i] = \text{maximum radiance value, channel } i$

$XRANGE_i = RANGE_i = X_{\max_i} - X_{\min_i}$

$XMED_i = MEDIAN_i = X_i$, for the X_i at which $N_{X_i} \geq \frac{N_{\text{TOTAL}}}{2}$

$XMODE_i = MODE_i = X_i$, for the X_i satisfying $\text{MAX}[N_{X_i}]$

$$P2_i = MEAN_i = \frac{\sum X_i}{N_{\text{TOTAL}}}$$

$XMNDEV_i = \text{MEAN DEVIATION}_i = \frac{\sum |X_i - P2_i|}{N_{\text{TOTAL}}}$

$$S2_i = \text{STANDARD DEVIATION}_i = \left(\sum X_i^2 - \frac{(\sum X_i)^2}{N_{\text{TOTAL}}} \right) / (N_{\text{TOTAL}} - 1)$$

The gains and biases computed using the 5x6 nm sample segment area means and standard deviation (P2 and S2) or mean deviation are as follows:

A2 ,B2

$$A2_i = 256/6 S2_i \quad B2_i = - (P2_i - 3 S2_i)$$

A3,B3 (truncated distribution)

$$P3_i = \frac{\sum X_i}{N_{TOTAL_i}} = \text{MEAN}$$

$$S3_i = \left(\sum X_i^2 - \frac{(\sum X_i)^2}{N_{TOTAL_i}} \right) / (N_{TOTAL_i} - 1)$$

where, for $i = 1, 4 \leq X_i \leq 120$

for $i = 2, 3 \leq X_i \leq 120$

for $i = 3, 5 \leq X_i \leq 120$

for $i = 4, 2 \leq X_i \leq 61$

$$A3_i = 256/6 S3_i, B3_i = (P3_i - 3 S3_i)$$

A4,B4 (truncated distribution)

$$P4_i = \text{MEAN} = \frac{\sum X_i}{N_{TOTAL_i}}$$

$$S4_i = \text{std. deviation} = \left(\sum X_i^2 - \frac{(\sum X_i)^2}{N_{TOTAL_i}} \right) / (N_{TOTAL_i} - 1)$$

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where; for $i = 1, 10 \leq X_i \leq 80$
 $i = 2, 10 \leq X_i \leq 80$
 $i = 3, 10 \leq X_i \leq 80$
 $i = 4, 5 \leq X_i \leq 40$

$$A4_i = 256/6 S4_i, B4_i = - (P4_i - 3 S4_i)$$

A5, B5 (truncated distribution)

$$P5_i = \text{MEAN} = \frac{\sum X_i}{N_{\text{TOTAL}_i}}$$

$$S5_i = \text{std. deviation} = \left(\sum X_i^2 - \frac{(\sum X_i)^2}{N_{\text{TOTAL}_i}} \right) / (N_{\text{TOTAL}_i} - 1)$$

where, for $i = 1, 20 \leq X_i \leq 60$
 $i = 2, 20 \leq X_i \leq 60$
 $i = 3, 20 \leq X_i \leq 60$
 $i = 4, 7 \leq X_i \leq 30$

A6, B6

$$A6_i = 256/4 S2_i$$

$$B6_i = (P2_i - 2 S2_i)$$

A7, B7 (uses mean deviation)

$$A7_i = 256/6 D_i$$

$$B7_i = - (P2_i - 3 D_i)$$

$$\text{where } D_i = \text{mean deviation} = \frac{\sum |X_i - P2_i|}{N_{\text{TOTAL}}}$$

A8, B8 (3σ truncation)

$$A8_i = \frac{256}{X_{\text{MAX}_i} - X_{\text{MIN}_i}}$$

$$B8_i = - X_{\text{MIN}_i}$$

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//

where $X_{MAX_i} = X_{UT_N}$ for $N = .00135 N_{TOTAL}$ (UT = upper tail)

$X_{MIN_i} = X_{LT_N}$ for $N = .00135 N_{TOTAL}$ (LT = lower tail)

A14, B14 (2.5 σ truncation)

$$A14_i = \frac{256}{X_{MAX_i} - X_{MIN_i}}, \quad B14_i = -X_{MIN_i}$$

where $X_{MAX_i} = X_{UT_N}$ for $N = .0065 N_{TOTAL}$

$X_{MIN_i} = X_{LT_N}$ for $N = .0065 N_{TOTAL}$

A15, B15 (2.0 σ truncation)

$$A15_i = \frac{256}{X_{MAX_i} - X_{MIN_i}}, \quad B15_i = -X_{MIN_i}$$

where $X_{MAX_i} = X_{UT_N}$ for $N = .0225 N_{TOTAL}$

$X_{MIN_i} = X_{LT_N}$ for $N = .0225 N_{TOTAL}$

A16, B16 (3 σ truncation)

$$A16_i = \frac{256}{X_{MAX_i} - X_{MIN_i}}, \quad B16_i = - (P2_i - X_{P2_i} - 3\sigma)$$

where $X_{MAX_i} = X_{UT_N}$ for $N = .00135 N_{TOTAL}$

$X_{MIN_i} = X_{LT_N}$ for $N = .00135 N_{TOTAL}$

$X_{P2_i} - 3\sigma = X_i$ at X_{LT} such that $N_{\bar{X}_i} + N_{X_i} \geq .49865 N_{TOTAL}$

where \bar{X}_i is mean radiance value, band i

A17,B17 (2.5σ truncation)

$$A17_i = \frac{256}{X_{MAX_i} - X_{MIN_i}}, \quad B17_i = -(P2_i - X_{P2_i} - 2.5\sigma)$$

where $X_{MAX_i} = X_{UT_N}$ for $N = .00655 N_{TOTAL}$

$X_{MIN_i} = X_{LT_N}$ for $N = .00655 N_{TOTAL}$

$X_{P2_i} - 2.5\sigma = X_i$ at X_{LT} such that

$$N_{\bar{X}_i} + N_{X_i} \geq .49345 N_{TOTAL}$$

where X_i = mean radiance, band i

A18,B18 (2.0σ truncation)

$$A18_i = \frac{256}{X_{MAX_i} - X_{MIN_i}}, \quad B18_i = -(P2_i - X_{P2_i} - 2\sigma)$$

where $X_{MAX_i} = X_{UT_N}$ for $N = .0229 N_{TOTAL}$

$X_{MIN_i} = X_{LT_N}$ for $N = .0229 N_{TOTAL}$

$X_{P2_i} - 2\sigma = X_i$ at X_{LT} such that $N_{\bar{X}_i} + N_{X_i} \geq .4771 N_{TOTAL}$

where \bar{X}_i = mean radiance value, band i

A21,B21 (3σ truncation)

$$A21_i = \frac{256}{6 S_{NEW_1}}, \quad B21_i = -(P_{NEW_1} - 3 S_{NEW_1})$$

$$\text{where: } S_{NEW_1} = \frac{\left(\sum X_i^2 - \frac{(\sum X_i)^2}{N_{TOTAL_1}} \right)}{(N_{TOTAL_1} - 1)}$$

$$P_{NEW_1} = \frac{\sum X_i}{N_{TOTAL_1}}$$

with X_i constrained to be within the range

$$P2_i - 3 S2_i < X_i < P2_i + 3 S2_i$$

and N_{TOTAL_1} = Total no. pixels in the range $P2_i - 3 S2_i < X_i < P2_i + 3 S2_i$

A22, B22 (iterated 3σ truncation)

$$A22_i = \frac{256}{6 S_{NEW_2}}, \quad B22_i = - (P_{NEW_2} - 3 S_{NEW_2})$$

$$\text{where } S_{NEW_2} = \left(\sum X_i^2 - \frac{(\sum X_i)^2}{N_{TOTAL_2}} \right) / (N_{TOTAL_2} - 1)$$

$$P_{NEW_2} = \frac{\sum X_i}{N_{TOTAL_2}}$$

with X_i constrained within the range

$$P_{NEW_1} - 3 S_{NEW_1} \leq X_i \leq P_{NEW_1} + 3 S_{NEW_1}$$

and N_{TOTAL_2} = total no, pixels in the range $P_{NEW_1} - 3 S_{NEW_1} \leq X_i \leq P_{NEW_1} + 3 S_{NEW_1}$

A23, B23 (truncated, sun angle corrected)

$$A23_i = \frac{256}{6 S_{T_i}}, \quad B23_i = - (P_{T_i} - 3 S_{T_i})$$

S_T = std. deviation of truncated distribution

P_T = mean of truncated distribution

where:

$$\begin{array}{ll} \text{for } i = 1, & 4 * CFACT \leq X_i \leq 80 * CFACT \\ i = 2, & 4 * CFACT \leq X_i \leq 80 * CFACT \\ i = 3, & 4 * CFACT \leq X_i \leq 80 * CFACT \end{array}$$

$$i = 4, \quad 2 * CFACT \leq X_i \leq 40 * CFACT$$

$$\text{and } S_{T_i} = \left(\sum X_i^2 - \frac{\left(\sum X_i \right)^2}{N_{TOTAL_i}} \right) / (N_{TOTAL_i} - 1)$$

$$P_{T_i} = \frac{\sum X_i}{N_{TOTAL_i}}$$

and N_{TOTAL_i} = total no. radiance values, channel i , within the range constraint for channel i

$$\text{and } CFACT = \frac{\sin 60^\circ}{\sin \text{ SUN ANGLE}}$$

A11, B11

$$A11_i = \frac{256}{5 S2_i}, \quad B11_i = -(P2_i - 2.5 S2_i)$$

A12, B12

$$A12_i = \frac{256}{5 D_i}, \quad B12_i = -(P2_i - 2.5 D_i)$$

$$\text{where } D_i = \frac{\sum |X_i - P2_i|}{N_{TOTAL}} = \text{mean deviation, channel } i$$

A13, B13

$$A13_i = \frac{256}{4 D_i}, \quad B13_i = -(P2_i - 2.0 D_i)$$

$$\text{where } D_i = \text{mean deviation in channel } i = \frac{\sum |X_i - P2_i|}{N_{TOTAL}}$$

A25, B25

$$\begin{aligned} A25_1 &= 8, & B25_1 &= - (P2_1 - 16) * 8 \\ A25_2 &= 5, & B25_2 &= - (P2_2 - 26) * 5 \\ A25_3 &= 5, & B25_3 &= - (P2_3 - 32) * 5 \\ A25_4 &= 10, & B25_4 &= - (P2_4 - 13) * 10 \end{aligned}$$

A19, B19 (Bands 1, 2, 4 dependent)

$$A19 = \frac{256}{X_{MAX}} - X_{MIN}, \quad B19 = - X_{MIN}$$

where $X_{MAX} = \text{MAX } [X_i]$

$$X_{MIN} = \text{MIN } [X_i]$$

for $i = \text{Channels } 1, 2, \text{ and } 4,$

with constraint that $X_i \text{ at } i = 4 = 2 * X_i$

A28, B28 (Bands 1, 2, 4 dependent)

$$A28 = \frac{256}{X_{HI}} - X_{LO}, \quad B28 = - X_{LO} * A28$$

where:

$$X_{HI} = P_{NEW} + M$$

$$X_{LO} = P_{NEW} - M$$

$$P_{NEW} = \text{NEW MEAN} = \frac{P2_1 + P2_2 + 2P2_4}{3}$$

$$M = \text{MAX} \left[(P2_i + 3 S2_i - P_{NEW}), (-P2_i + 3 S2_i + P_{NEW}) \right]$$

for $i = \text{channels } 1, 2, \text{ and } 4$

A20, B20 (Bands 2, 3, 4 dependent)

$$A20 = \frac{256}{X_{MAX}} - X_{MIN}, \quad B20 = - X_{MIN}$$

where $X_{\text{MAX}} = \text{MAX } [X_i]$

$X_{\text{MIN}} = \text{MIN } [X_i]$

for $i = \text{channels } 2, 3, 4$ and constraint $X_i = 2 X_i$, for
 $i = 4$

A29, B29 (Bands 2, 3, 4 dependent)

$$A29 = \frac{256}{X_{\text{HI}} - X_{\text{LO}}} \quad , \quad B29 = -X_{\text{LO}} * A29$$

where $X_{\text{HI}} = P_{\text{NEW}} + M$

$X_{\text{LO}} = P_{\text{NEW}} - M$

$$P_{\text{NEW}} = \text{new mean} = \frac{p2_2 + p2_3 + p2_4}{3}$$

$$M = \text{MAX} \left[\left(p2_i + 3S2_i - P_{\text{NEW}} \right), \left(-p2_i + 3S2_i + P_{\text{NEW}} \right) \right]$$

for $i = \text{channels } 2, 3, 4$

PFCGAB also computes and outputs the frequency distribution of PFC grey-shade levels for the input image radiance values, using the 10x11 nm search area gain, A1, and second bias, B1. The PFC grey-shade levels are computed such that there is equal probability of image radiance values being assigned to the 16 PFC grey levels, as follows:

$$Y_i = A1_i * (X_i + B1_i) = \text{gain, and bias corrected radiance value, channel } i$$

$$Y_{MAX_i} = \text{MAX } [Y_i]$$

$$Y_{MIN_i} = \text{MIN } [Y_i]$$

$$\Delta Z_i = \text{grey-level increment} = \frac{16.0}{Y_{MAX_i} - Y_{MIN_i}}$$

$$N_y = \text{Number of Y-values} = Y_{MAX} - Y_{MIN} + 1.0$$

$$\text{LEVEL} = J * \Delta Z + 1, J = 1, 2, \dots, N_y$$

with constraint that $1(\leq \text{LEVEL}) \leq 16$, integers.

$$\text{FREQUENCY}_J = \sum N_{X_i} \Rightarrow Y_{J_i}; \text{ i.e., the number of pixels at PFC level } J = \text{the number of pixels mapped into } Y_J \text{ and } Y_J = 1 * \Delta Z \leq Y_J \leq Y_J + 1 * \Delta Z$$

A sun angle may be input to PFCGAB from either the input image tape header (for GSFC tapes) or by NAMELIST \$CARDIN card input. If available, a sun angle correction factor is computed as follows:

$$\text{CFACT} = \text{sun angle correction factor} = \frac{\text{SIN } (60^\circ)}{\text{SIN } (\text{Sun angle})}$$

If the sun-angle is available the sun angle correction is applied to the 5x6 nm sample segment area statistics for output of sun angle-corrected statistics computed as follows:

$$\text{CXMIN}_i = \text{CFACT} * \text{XMIN}_i = \text{corrected } X_{MIN}$$

$$\text{CXMAX}_i = \text{CFACT} * \text{XMAX}_i = \text{corrected } X_{MAX}$$

$$\text{CRANGE}_i = \text{CFACT} * \text{XRANGE}_i = \text{corrected range}$$

$CMEAN_i = CFACT * P2_i = \text{corrected mean}$
 $CSTDEV_i = CFACT * S2_i = \text{corrected standard deviation}$
 $CMNDEV_i = CFACT * XMNDEV_i = \text{corrected mean deviation}$
 $CMODE_i = CFACT * XMODE_i = \text{corrected mode}$
 $CMED_i = CFACT * XMED_i = \text{corrected median}$
 for $i = \text{band } 1, 2, 3, 4$

3.2.1.7 Flowcharts

The detail flowchart for PRCGAB is contained in Appendix A of this document.

3.2.1.8 Program Listings

The listing for every element in the PFCGAB program is contained in Appendix B of this document.

4. OPERATION

Program PFCGAB is executed via a batch-run deck submitted to the NASA-JSC central computing complex in Building 12. The run deck must have as the initial card in the deck the Univac "Run" card ("7/8 RUN ...") as documented in the Institutional Data Systems Division (IDSD) Procedures Manual, Part 19. The necessary Univac system control cards to assign the input data tape and the program tape to the run are illustrated in the "Sample Deck" illustration, section 4.5. Execution of the program, after the program tape contents have been entered into the Program Complex File area of the drum, is by means of the Univac Control card, "7/8 XQT PFCGAB." Following the "7/8 XQT PFCGAB" control card one or more Fortran V NAMELIST inputs are expected. The NAMELIST Name for input is "\$CARDIN," with "\$" always punched in card column 2 of the card.

The final card in the batch-run deck, following all NAMELIST "\$CARDIN....\$END" sets of variable values input to the program, should be the Univac End-of-File control card, "7/8 EOF." The EOF card is the program's signal to stop attempting to read "\$CARDIN...\$END" inputs, and terminate execution.

The specific variables which may be card-input to the program via NAMELIST \$CARDIN are described below. The user is cautioned that NAMELIST input demands that the variables be input by "Name = value," and that the Name must be spelled accurately in the input.

The two required tapes to be input, and the program's printed output are also described below.

4.1 CARD INPUT

Input is by MEANS of NAMELIST "\$CARDIN," i.e., "\$CARDIN
VAR1 = XX, VAR2 = Y, VAR3 = Z, VAR4(1) = XYZ.W,..., \$END "

The variables which may be input, by NAME, are:

<u>Variable</u>	<u>Description</u>
GSFCTP	(Integer) Flag to indicate that the input tape is a Goddard-generated tape- GSFCTP ≥ 1 , input tape <u>is</u> a Goddard tape GSFCTP ≤ 0 , input tape is <u>not</u> a Goddard tape
REGTP	(Integer) Flag to indicate that the input tape is one produced from segment-registration studies- REGTP ≥ 1 , input tape <u>is</u> a registration tape. REGTP ≤ 0 , input tape is <u>not</u> a "registration" tape (NOTE: The capability to process registration tapes is not in the program at this time)
MERGTP	(Integer) Flag to indicate that the input Tape is a "merged-image" Tape from ERIPS- MERGTP ≥ 1 , input tape <u>is</u> a merged-image tape. MERGTP ≤ 0 , input tape is <u>not</u> a merged-image tape.
NFILES	(Integer) number of files to process, on the input tape (default = 1).
FSTART	(Integer) FIRST FILE NUMBER, at which processing is to begin on the input tape (default = 1) Processing of the input Tape begins at

Variable

Description

FSTART, and NFILES files will be sequentially processed on the Tape.

NUMCH

(Integer) The total number of channels on the Tape-input image; should be an integral multiple of 4 channels (i.e.; 4, 8, 12, 16, 20, ..., 32)
(default set = 4 channels)

EL

(Integer) Sun angle. If the Sun angle is input, the input sun angle will be used in computing sun-angle corrections to the 5x6 area statistics. If the sun angle is not input, and is not available from the input tape header record, no sun-angle corrections will be attempted by the program.

(default set = 0)

A

(floating point) dimensioned = 4 - the 10x11 search area gain for 4 channels
A(1), may be input as: "A(1) = XX.X,
A(2) = XX.X, A(3) = XX.X, A(4) = XX.X"
(default set = 0.0)

B

(floating point) dimensioned = 4 - the 10x11 search area biases (B1) for 4 channels may be input as: "B(1) = XX.X,
B(2) = XX.X, B(3) = XX.X B(4) = XX.X"
(default set = 0.0)

(NOTE: If A1 and B1 are input via A and B, the input gains and biases will be used, instead of the Tape-supplied A1, B1, if available. If A1, B1 are

Variable

Description

are neither input nor available from the tape, the gains and biases computed from A1, B1 are bypassed in the program, and will not be present in the printed output)

The default (program-set) values assigned to the input variables are:

GSFCTP = 1 (i.e., Goddard tape is the default)
REGTP = 0
MERGTP = 0
FSTART = 1 (file no. 1 is the default)
NFILES = 1 (the number of files = 1 is the default)
MUMCH = 4 (total No. of channels on the tape = 4 is the default)
A(1), A(2), A(3), A4 = 0.0
B(1), B(2), B(3), B(4) = 0.0

Any variable not specifically input, by NAME and value, will go into execution with the program-set default value. An "empty" NAMELIST input (" \$CARDIN \$END") will result in program execution with all input variables set to the default values.

The program expects and will execute multiple "\$CARDIN... \$END" inputs. There is No requirement to order multiple "\$CARDIN \$END" namelist inputs with respect to type of tape being processed, or the files to be processed.

The program expects to be terminated by an "End-of-file" card ("7/8 EOF"), following the last "\$CARDIN...\$END" NAMELIST input.

4.2 TAPE INPUT

The input Tape must be assigned to (logical) Univac unit "A" (Fortran unit 1). The input tape is presumed to be in the "Univac" (or LARSYS2) tape format, one or more files, and four or more channels per input image up to a maximum of 32 channels. The program internally processes "images" with 4-channels per "image" pixel, 196 pixels per scan line and 117 scan lines. The input tape is also presumed to be a 9-TRACK tape, on the sample deck set-up shown in a succeeding section.

The program (PCF) tape may be assigned to any unit other than "A" ("B" - "Z"). The program is entered into the computer from the program tape by appropriate use of the EXEC II system "CUR" ("Complex utility Routines") commands. See the sample deck set-up for the format and sequence of the control cards and commands to bring in the program from tape.

The current Bldg. 12 library tape number for the program tape is X01400.

4.3 OUTPUT

All output is printer output, as follows:

The first page contains various self-identified quantities from the "universal" tape header record, which are pertinent to the imagery in the file being processed.

The second and succeeding pages of output are generated by program PFCGAB. Each page of output of a given type is headed by:

File No., of current input tape file being processed
LACIE Sample Segment No., of current input tape file being processed.

Sample Segment I.D. (LANDSAT Orbit) of the segment

Latitude, Longitude, of sample segment center

Sun elevation,

Sun Azimuth, at the time the imagery was LANDSAT-acquired
(in degrees)

All these quantities are obtained from the tape header record associated with the input tape file being processed.

The first page of program PFCGAB output contains the uncorrected and (sun elevation) corrected statistics for the 5x6 nm sample segment, and the statistics and bias and gain from the 10x11 nm search area, on a per-channel basis.

The second page of program PFCGAB output contains a tabulation of the percentage of pixels in the 5x6 nm sample segment, which exceed certain pre-selected pixel values, on a per-channel basis.

The third (and probably fourth) pages of PFCGAB output are a frequency distribution histogram of the input 5x6 sample segment pixels, on a per-channel basis.

The page following the 5x6 sample segment histogram is a histogram of the frequency distribution of the Production Film Converter (PFC) gray-shade levels for 5x6 nm sample segment, after application of the Goddard (or input) bias and scale factors (A1,B1) to the input imagery.

Following the PFC Frequency Distribution, the PFCGAB program outputs the gain, bias, mean, and standard deviation for the 10x11 nm search area (A1, B1, P1, S1), the 5x6 NM sample segment area (A2, B2, P2, S2) and the program-computed gain, bias, mean, standard deviation for 3 pre-selected truncated distributions of the 5x6 NM area, the bias and scaling factor for "modified" (4 std dev.) standard deviation, the "average" (256/6x mean deviation) scaling and bias (= sample mean - 3 mean deviations), and the "percent" scale and bias factor computed from the sample segment distribution within .00135 tail limits. All computations shown on a per-channel basis. Succeeding pages of output contain the self-identified gains and biases computed by the program using various combinations of multiples of the standard deviation. See section 3.2.1.6, Description, for the method of computing the output gains and biases.

4.4 PROGRAM USE RESTRICTIONS

Although input is set up for three types of input tapes, the program is currently restricted to input and processing of the Goddard or ERIPS "merge" tapes only. Processing of the registration tapes requires additional specialized card-input variables to compensate for the lack of usable header information on the "registration" tapes.

Also, the user is cautioned that NAMELIST input variables retain their values until specifically changed by input of the variable, by NAME, on a "\$CARDIN...\$END" namelist input.

4.5 SAMPLE DECK SET-UP

Card Column 1

7/8~~PRUN~~...

7/8~~SCH~~9T = 1, TT=1

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26

7/8AN~~Ø~~ASG~~Ø~~A=XXXXX

7/8bASG~~Ø~~B=X01400

7/8~~Ø~~XQT~~Ø~~CUR

TRW A,B

IN ~~ØØ~~ B

TRI B

TOC

7/8~~Ø~~ XQT ~~ØØ~~ PFCGAB

Card Column 2

\$CARDIN ~~ØØ~~ VAR. NAME1=X, VAR. NAME=XX, ... \$END

7/8~~Ø~~E~~Ø~~F

4.6 PROGRAM EXECUTION CHARACTERISTICS

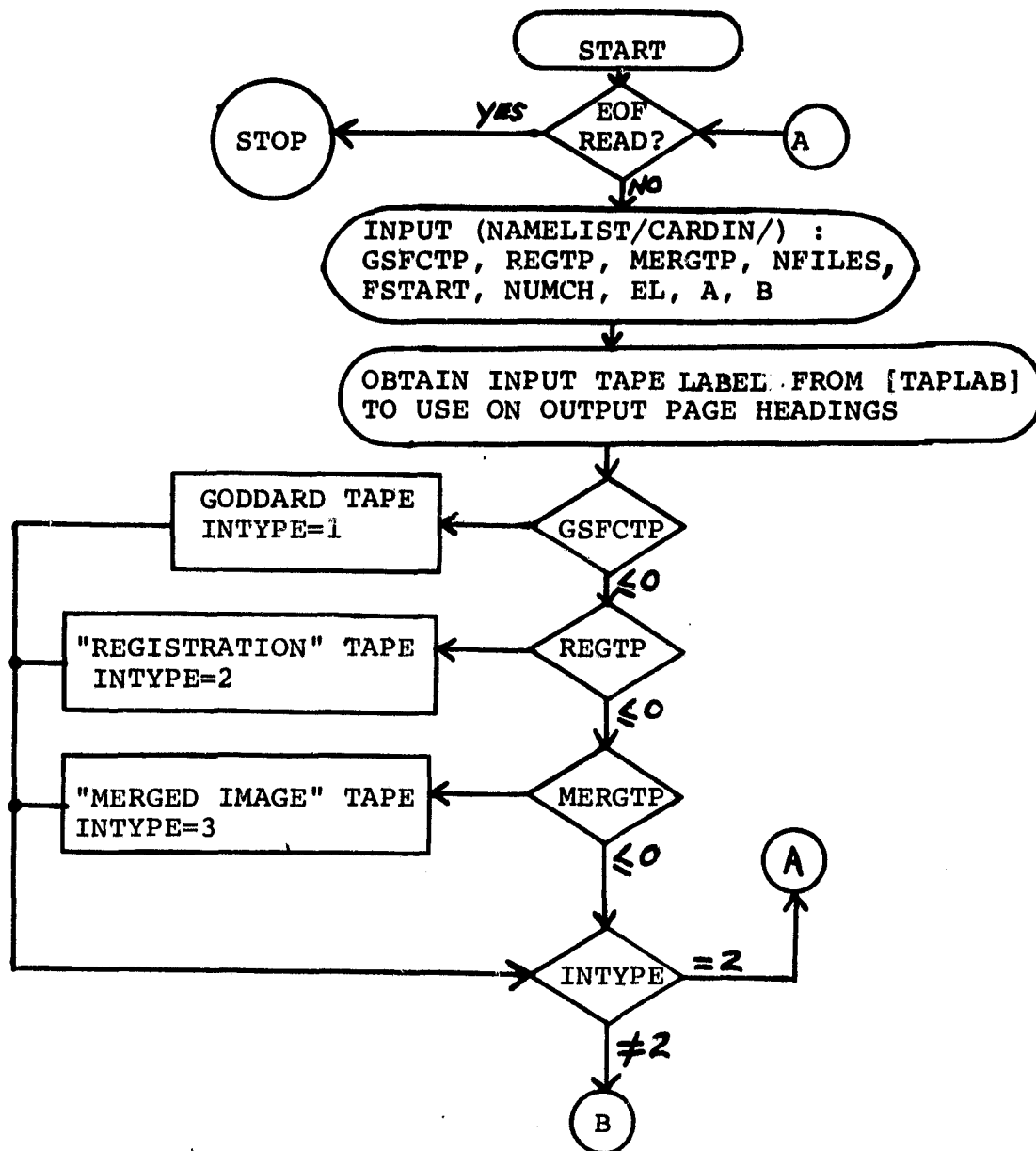
Typical run-time, for a multi-file execution, is on the order of 1 minute per file. The amount (No. of pages) of print-out to be expected is estimated as 4 pages + no. files x 10 pages per file.

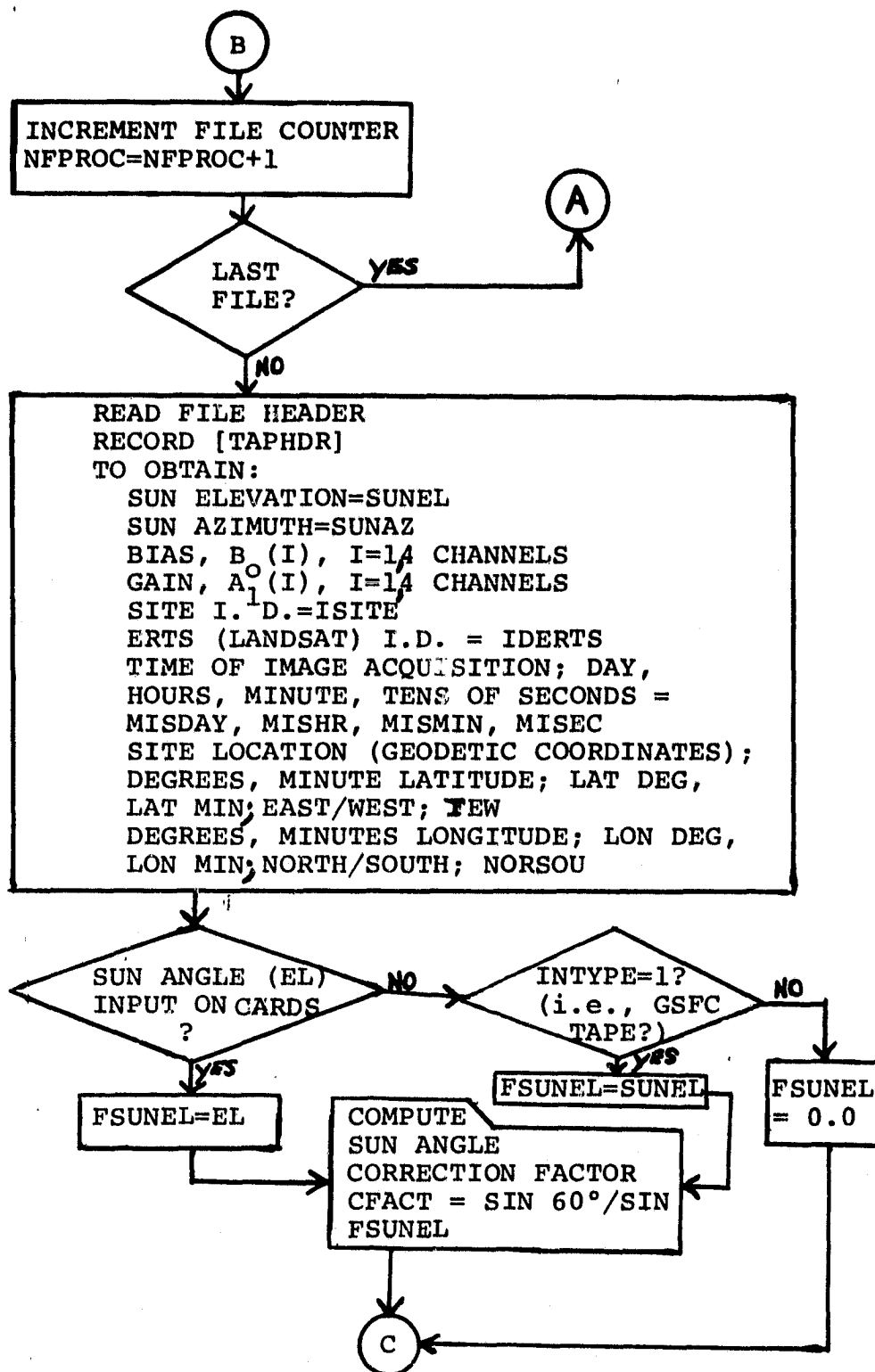
The program executes on the UNIVAC 1108, EXEC2 operating system, in batch mode. The program run deck, user-supplied input tape, and the required form 588, "Instructions for Central Computer Complex Runs," are submitted to the dispatch desk in building 12. The tape, if properly labeled by the user, and printed output from the run will be returned to the location code supplied on the "7/8 RUN" card of the deck, and noted in the proper place on the form 588 input to the dispatch area with the run deck.

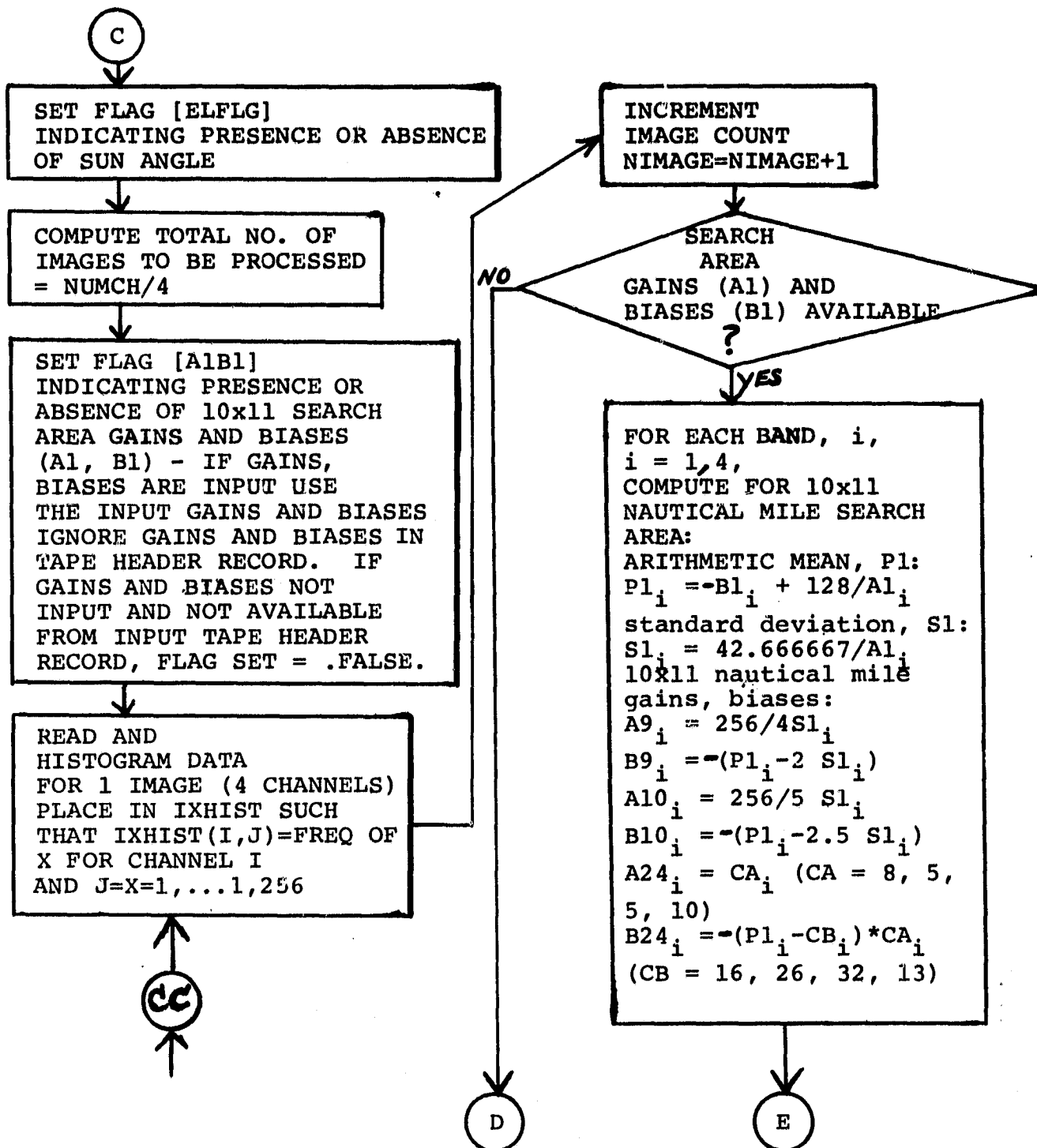
It is advisable to note on the F m 588, in the "Programmer Comments" area, that a 9-track tape unit is required for the run, and also on the form 588 under "Input Tapes," where the input tape unit and number are shown, to add a notation beside the input tape that it is a 9-track tape.

NOTE: The program is not restricted to run with a 9-track input data tape. If LACIE imagery is to be input on a 7-track tape, the only required change is in the run deck, to use the correct Univac "7/8 ASG" control card options for the type of tape (9-track or 7-track) being input.

APPENDIX A
PFCGAB DETAILED FLOWCHART







D

SET A1, B1, P1, S1,
A9, B9, A10, B10 = "BLANK"
SET A24, B24, A26, B26,
A27, B27 = BADUAL = 99999999.9

E

COMPUTE 5x6 NM SAMPLE SEGMENT AREA
STATISTICS: MEAN (P2), MEDIAN, MODE, RANGE,
MEAN DEVIATION, AND STANDARD DEVIATION (S2)
ALSO, COMPUTE GAINS, BIASES DELATED TO MEAN, P2,
STANDARD DEVIATION S2, OR MEAN DEVIATION, D :

$$P2_i = \sum_{J=1}^N X_J / N_i, \quad N_i = \text{NO. OF PIXELS, BAND } i$$

$$S2_i = \sqrt{\frac{\sum (X - P2_i)^2}{N-1}}$$

$$A2_i = 256/6 S2_i$$

$$B2_i = - (P2_i - 3 S2_i)$$

$$A6_i = 256/4 S2_i$$

$$B6_i = - (P2_i - 2 S2_i)$$

$$A7_i = 256/6 D_i \quad B7_i = (P2_i - 3 D_i)$$

$$A11_i = 256/5 S2_i$$

$$B11_i = (P2_i - 2.5 S2_i)$$

$$A12_i = 256/5 D_i$$

$$B12_i = (P2_i - 2.5 D_i)$$

$$A13_i = 256/4 D_i$$

$$B13_i = - (P2_i - 2 D_i)$$

$$A25_i = CA_i \quad (= 8, 5, 5, 10)$$

$$B25_i = - (P2_i - CB_i) * CA_i \quad [CB = 16, 26, 32, 13]$$

F

F

COMPUTE GAIN, BIAS BASED
ON MAXIMUM DATA VALUE FROM BANDS 1, 2, and 2* BAND 4
AND MINIMUM DATA VALUE FROM BANDS 1, 2, and 2* BAND 4
 $A19 = 256 / [\text{MAX}(\text{BANDS } 1, 2, 2*4) - \text{MIN}(\text{BANDS } 1, 2, 2*4)]$
 $B19 = -[\text{MIN}(\text{BANDS } 1, 2, 2*4)]$

COMPUTE GAIN, BIAS BASED
ON MAXIMUM DATA VALUE FROM BANDS 2, 3, and 2* BAND 4
AND MINIMUM DATA VALUE FROM BANDS 2, 3, and 2 * BAND 4
 $A20 = 256 / [\text{MAX}(\text{BANDS } 2, 3, 2*4) - \text{MIN}(\text{BANDS } 2, 3, 2*4)]$
 $B20 = - [\text{MIN}(\text{BANDS } 2, 3, 2*4)]$

COMPUTE GAINS, BAISES BASED ON MEANS $(P2)_{\text{NEW}}$ AND STANDARD
DEVIATIONS $(S2)_{\text{NEW}}$ DERIVED FROM DISTRIBUTION AFTER ELIMINATION
OF POINTS MORE THAN $3*S2$ FROM $P2$:

$$\begin{aligned} A21 &= 256/6 S2_{\text{NEW}_1} \\ B21 &= -(P2_{\text{NEW}_1} - 3 S2_{\text{NEW}_1}) \\ A22 &= 256/6 S2_{\text{NEW}_2} \\ B22 &= -(P2_{\text{NEW}_2} - 3 S2_{\text{NEW}_2}) \end{aligned}$$

COMPUTE GAIN, BIASES FOR 10x11 NAUTICAL MILE SEARCH AREA,
BASED ON SEARCH AREA MEAN, $P1$, AND STANDARD DEVIATION, $S1$, IN
BANDS 1, 2, AND 4:

$$\begin{aligned} A26 &= 256/(H-L) \\ B26 &= -(L*A26) \end{aligned}$$

$$\text{where: } P014 = (P1_1 + P1_2 + 2*P1_4)/3$$

$$\begin{aligned} M14 &= \text{MAX} \{ (P1_i + 3 S1_i - P014), (-P1_i + 3 S1_i + P014) \} \\ i &= \text{BAND } 1, 2, 2*4 \\ H &= P014 + M14 \\ L &= P014 - M14 \end{aligned}$$

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COMPUTE GAIN, BIAS FOR 10x11 NAUTICAL MILE SEARCH AREA, BASED ON SEARCH AREA MEAN, P1, AND STANDARD DEVIATION, S1, IN BANDS 2, 3, AND 4:

$$A27 = 256/(H-L)$$

$$B27 = -L*A27$$

WHERE:

$$P013 = (P1_2 + P1_3 + 2*P1_4)/3$$

$$M13 = \text{MAX} \{ (P1_i + 3 S1_i - P013), (-P1_i + 3 S1_i + P013) \}$$

$i = \text{BANDS } 2, 3, 4$

$$H = P013 + M13$$

$$L = P013 - M13$$



COMPUTE GAIN, BIAS FOR 5x6 NAUTICAL MILE SAMPLE SEGMENT AREA BASED ON SAMPLE SEGMENT MEAN, P2, AND STANDARD DEVIATION, S2, IN BANDS 1, 2, 4

$$A28 = 256/(H-L)$$

$$B28 = -L*A28$$

WHERE:

$$P024 = (P2_1 + P2_2 + 2P2_4)/3$$

$$M24 = \text{MAX} \{ P2_i + 3 S2_i - P024, -P2_i + 3 S2_i + P024 \}$$

$$i = 1, 2, 4$$

$$H = P024 + M24$$

$$L = P024 - M24$$





COMPUTE GAIN, BIAS FOR 5x6 NAUTICAL MILE
SAMPLE SEGMENT AREA BASED ON SAMPLE SEGMENT
MEAN, P2 AND STANDARD DEVIATION, S2, IN BANDS 2, 3, 4:

$$A29 = 256/(H-L)$$

$$B29 = -L \cdot A29$$

WHERE:

$$P023 = (P2_2 + P2_3 + P2_4) / 3$$

$$M23 = \text{MAX}((P2_i + 3 S2_i - P023), (P2_i + 3 S2_i + P023))$$

$$i = 2, 3, 4$$

$$H = P023 + M23$$

$$L = P023 - M23$$



NC = NO. CHANNELS = 4



COMPUTE GAINS, BIASES, MEANS, STANDARD DEVIATIONS
IN BANDS 1, 2, 3, 4 WITHIN A TRUNCATED RANGE OF
VALUES IN BANDS 1, 2, 3, 4,
WITH j=CHANNEL=1, 2, 3, 4
AND I = TRUNCATED RANGE 1, 2, 3, 4:

FOR I = 1;

$$\text{MIN}_{IJ} = 4, 3, 5, 2$$

$$\text{MAX}_{IJ} = 120, 120, 120, 61$$

FOR I = 2;

$$\text{MIN}_{IJ} = 10, 10, 10, 15$$

$$\text{MAX}_{IJ} = 80, 80, 80, 40$$

FOR I = 3;

$$\text{MIN}_{IJ} = 20, 20, 20, 7$$

$$\text{MAX}_{IJ} = 60, 60, 60, 30$$

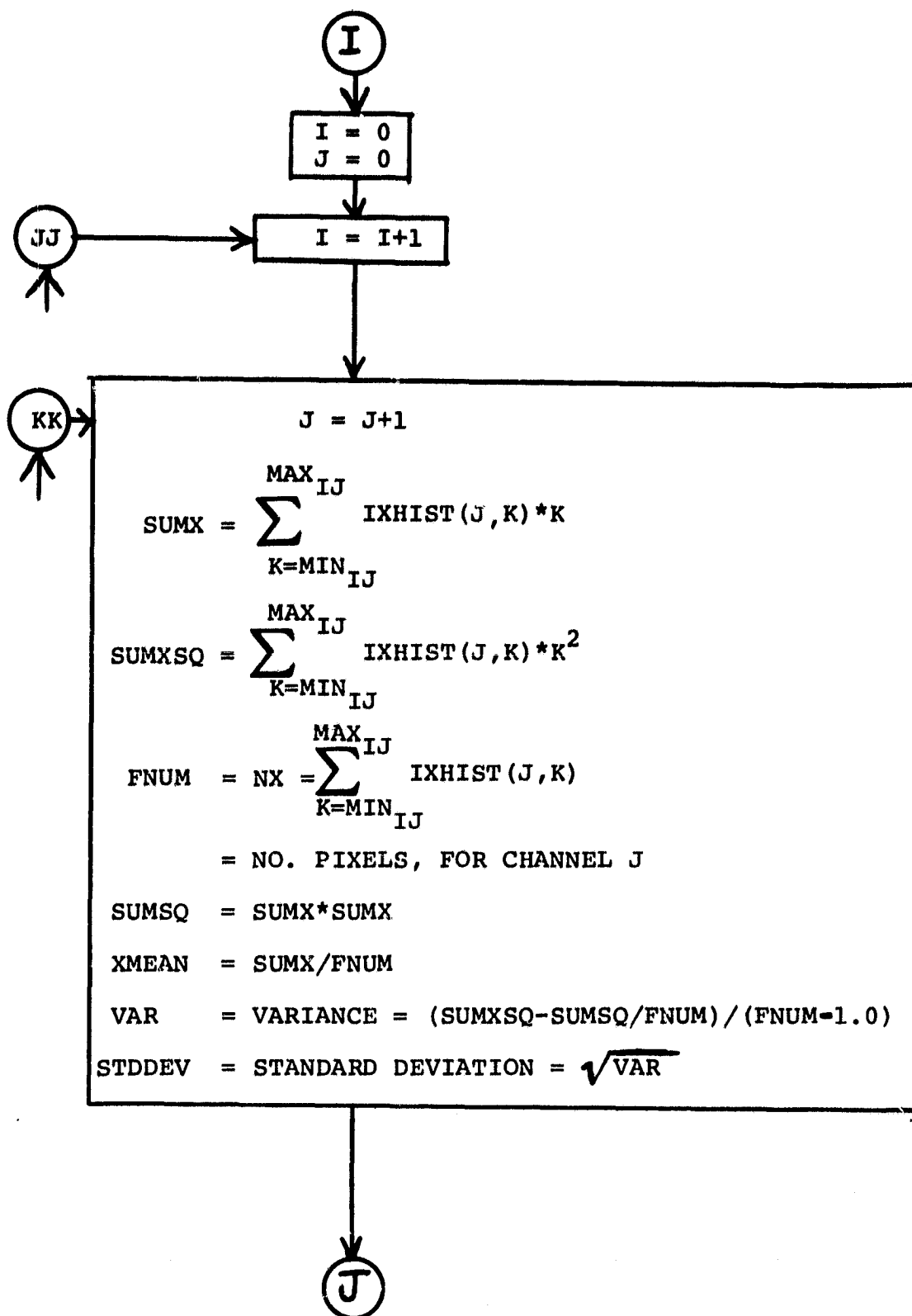
FOR I = 4 (AND SUN ANGLE, EL, AVAILABLE);

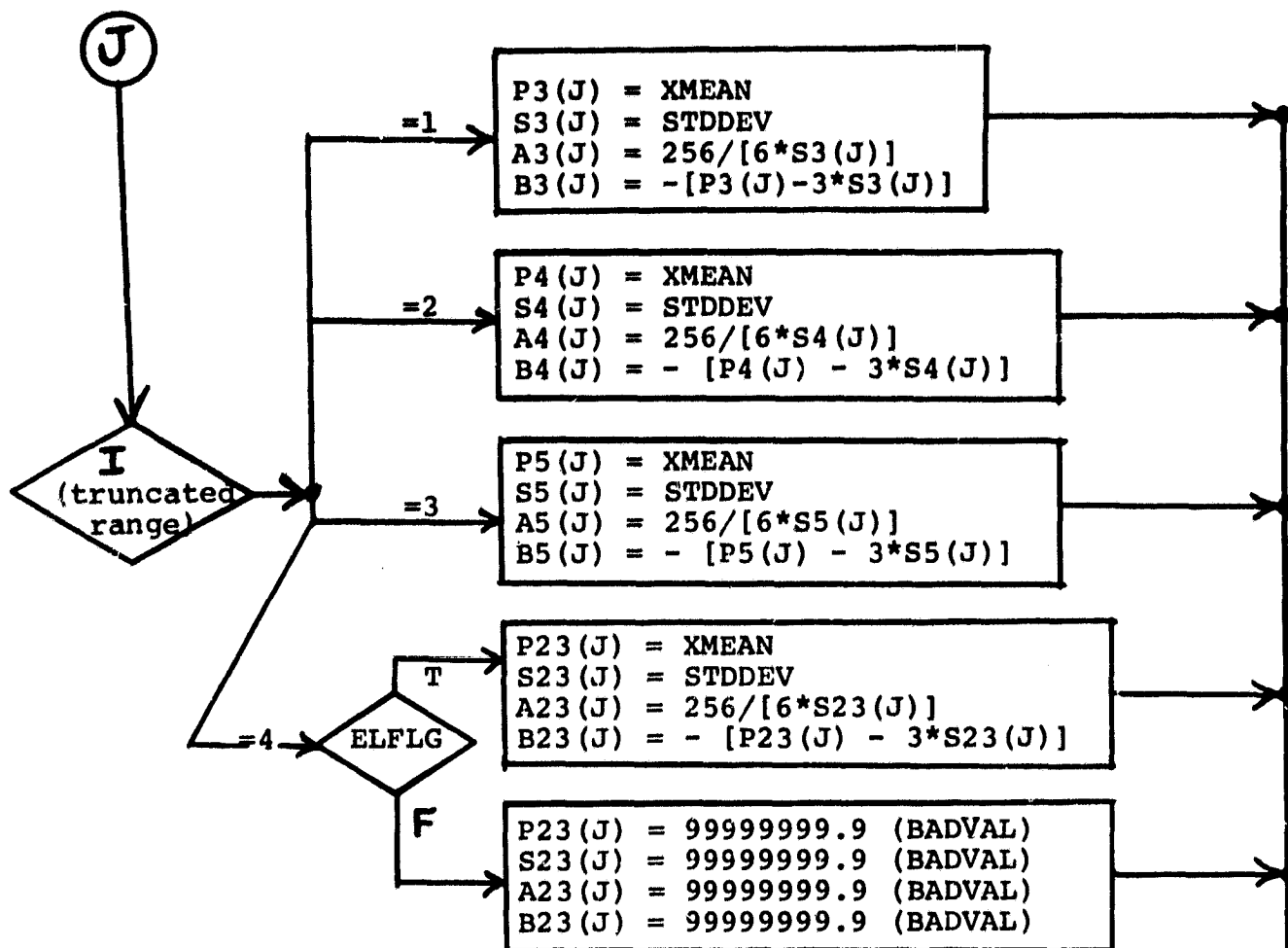
$$\text{MIN}_{IJ} = \frac{\text{SIN}(EL)}{\text{SIN } 60^\circ} [10, 10, 10, 5]$$

$$\text{MAX}_{IJ} = \frac{\text{SIN}(EL)}{\text{SIN } 60^\circ} [80, 80, 80, 40]$$



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COMPUTE 3σ , 2.5σ , 2.0σ GAINS AND BIASES
(A8, B8, A14, B14, A15, B15, A16, B16,
A17, B17, A18, B18):

$NUMX_i$ = TOTAL NO. PIXELS IN CHANNEL i

GSC_k = $GSCALE_k$, $k = 1, \dots, 6$
 = .00135, .00655, .0225, .00135, .00655,
 .0229

BSC_k = $BSCALE_k$, $k = 1, \dots, 6$
 = .00135, .00655, .0225, .49865
 .49345, .4771

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(K)

(K)

FOR COMPUTATION OF GAINS FOR CHANNEL i;

$\text{MIN}_{i_k} = N$ (PIXEL VALUE IN CHANNEL i)

= M-1 FOR M SUCH THAT

$$\sum_{J=1}^M \text{IXHIST}(J)_i \geq \text{GSC}_k * \text{NUMX}_i$$

$\text{MAX}_{i_k} = N$ (PIXEL VALUE IN CHANNEL i)

= M-1 FOR M SUCH THAT

$$\sum_{J=M}^{256} \text{IXHIST}(J)_i \geq \text{GSC}_k * \text{NUMX}_i$$

for k = 1, 2, ..., 6



FOR COMPUTATION OF BIASES FOR CHANNEL i;

FOR k = 1, 2, 3 :

$\text{MIN}_{i_k} = M-1$ FOR M SUCH THAT

$$\sum_{J=1}^M \text{IXHIST}(J)_i \geq \text{BSC}_k * \text{NUMX}_i$$

FOR k = 4, 5, 6;

$\text{MIN}_{i_k} = M-1$ FOR M SUCH THAT

$$\sum_{J=M}^{P2_i} \text{IXHIST}(J)_i \geq \text{BSC}_k * \text{NUMX}_i$$



(L)

(M)



3.0, 2.5, 2.0σ GAINS:

$$A_{8i} = 256 / (\text{MAX}_{i_1} - \text{MIN}_{i_1})$$

= 3σ GAIN, CHANNEL i

$$A_{14i} = 256 / (\text{MAX}_{i_2} - \text{MIN}_{i_2})$$

= 2.5σ GAIN, CHANNEL i

$$A_{15i} = 256 / (\text{MAX}_{i_3} - \text{MIN}_{i_3})$$

= 2.0σ GAIN, CHANNEL i

$$A_{16i} = 256 / (\text{MAX}_{i_4} - \text{MIN}_{i_4})$$

= 3.0σ GAIN, CHANNEL i

$$A_{17i} = 256 / (\text{MAX}_{i_5} - \text{MIN}_{i_5})$$

= 2.5σ GAIN, CHANNEL i

$$A_{18i} = 256 / (\text{MAX}_{i_6} - \text{MIN}_{i_6})$$

= 2.0σ GAIN, CHANNEL i

3.0, 2.5, 2.0σ BIASES:

$$B_{8i} = - \text{MIN}_{i_1}$$

$$B_{14i} = - \text{MIN}_{i_2}$$

$$B_{15i} = - \text{MIN}_{i_3}$$

$$B_{16i} = - \text{MIN}_{i_4}$$

$$B_{17i} = - \text{MIN}_{i_5}$$

$$B_{18i} = - \text{MIN}_{i_6}$$

(N)



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(N)



PCTGT_{i1} = % OF 5x6 NM AREA PIXELS > RADIANCE VALUE = 60

$$= \sum_{J=62}^{256} \text{IXHIST}(J)_i / \text{NUMX}_i * 100.0$$

PCTGT_{i2} = % OF 5x6 NM AREA PIXELS > RADIANCE VALUE = 90

$$= \sum_{J=92}^{256} \text{IXHIST}(J)_i / \text{NUMX}_i * 100.0$$

PCTGT_{i3} = % 5x6 NM AREA PIXELS > $60 * \frac{\text{RADIANCE VALUE}}{\text{SIN}(EL)}$

PCTGT_{i4} = % 5x6 NM AREA PIXELS > $70 * \frac{\text{RADIANCE VALUE}}{\text{SIN}(EL)}$

PCTGT_{i5} = % 5x6 NM AREA PIXELS > $80 * \frac{\text{RADIANCE VALUE}}{\text{SIN}(EL)}$

PCTGT_{i6} = % 5x6 NM AREA PIXELS > $90 * \frac{\text{RADIANCE VALUE}}{\text{SIN}(EL)}$



STATISTICS CORRECTED TO 60° SUN ELEVATION:

CXMIN_i = $\frac{\text{SIN}(60)}{\text{SIN}(EL)} * X_{\text{MIN}_i}$ = CORRECTED MINIMUM PIXEL VALUE, CHANNEL i

CXMAX_i = $\frac{\text{SIN}(60)}{\text{SIN}(EL)} * X_{\text{MAX}_i}$ = CORRECTED MAXIMUM PIXEL VALUE, CAHNNEL i

(Ø)

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$$CRANGE_i = \frac{\sin(60)}{\sin(EL)} * (X_{MAX_i} - X_{MIN_i}) = \text{CORRECTED RANGE, CHANNEL } i$$

$$CMEAN_i = \frac{\sin(60)}{\sin(EL)} * P2_i = \text{CORRECTED MEAN}$$

$$CSTDEV_i = \frac{\sin(60)}{\sin(EL)} * S2_i = \text{CORRECTED STANDARD DEVIATION}$$

$$CMNDEV_i = \frac{\sin(60)}{\sin(EL)} * XMNDEV_i = \text{CORRECTED MEAN DEVIATION}$$

$$CMODE_i = \frac{\sin(60)}{\sin(EL)} * XMODE_i = \text{CORRECTED MODE}$$

$$CMED_i = \frac{\sin(60)}{\sin(EL)} * XMED_i = \text{CORRECTED MEDIAN}$$



FREQUENCY DISTRIBUTION OF PFC DATA VALUES, Y:

$$\text{FOR } IY = Y1 = A1_i * (X_i + B1_i) + 0.5,$$

$$IYHIST(i, IY, 1) = IXHIST(i, IX)$$

= NO. OF PIXELS, CHANNEL i

PFC GREY-LEVEL ASSIGNMENT (EQUAL PROBABILITY OF Y-VALUES ASSIGNED TO PFC GREY-LEVEL):

$$LVL PFC = \text{PFC GREY-LEVEL, } 1 \leq LVL PFC \leq 16$$

$$\Delta Z = \text{GREY-LEVEL INCREMENT}$$

$$= \frac{16.0}{Y_{MAX} - Y_{MIN}} = \frac{\text{NO. GREY LEVELS}}{\text{Y RANGE}}$$

$$\text{FOR } J2 = 1, 2, 3, \dots, N_y$$

$$\text{AND } N_y = Y_{MAX} - Y_{MIN} + 1.0 = \text{NO. OF Y-VALUES,}$$

$$IZ = J2 * \Delta Z + 1.0$$



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WITH CONSTRAINTS:

IF $IZ > 16$, $IZ = 16$

$IYHIST(i, IY, 2) = IZ$
= PFC GREY-LEVEL FOR $Y = IY$

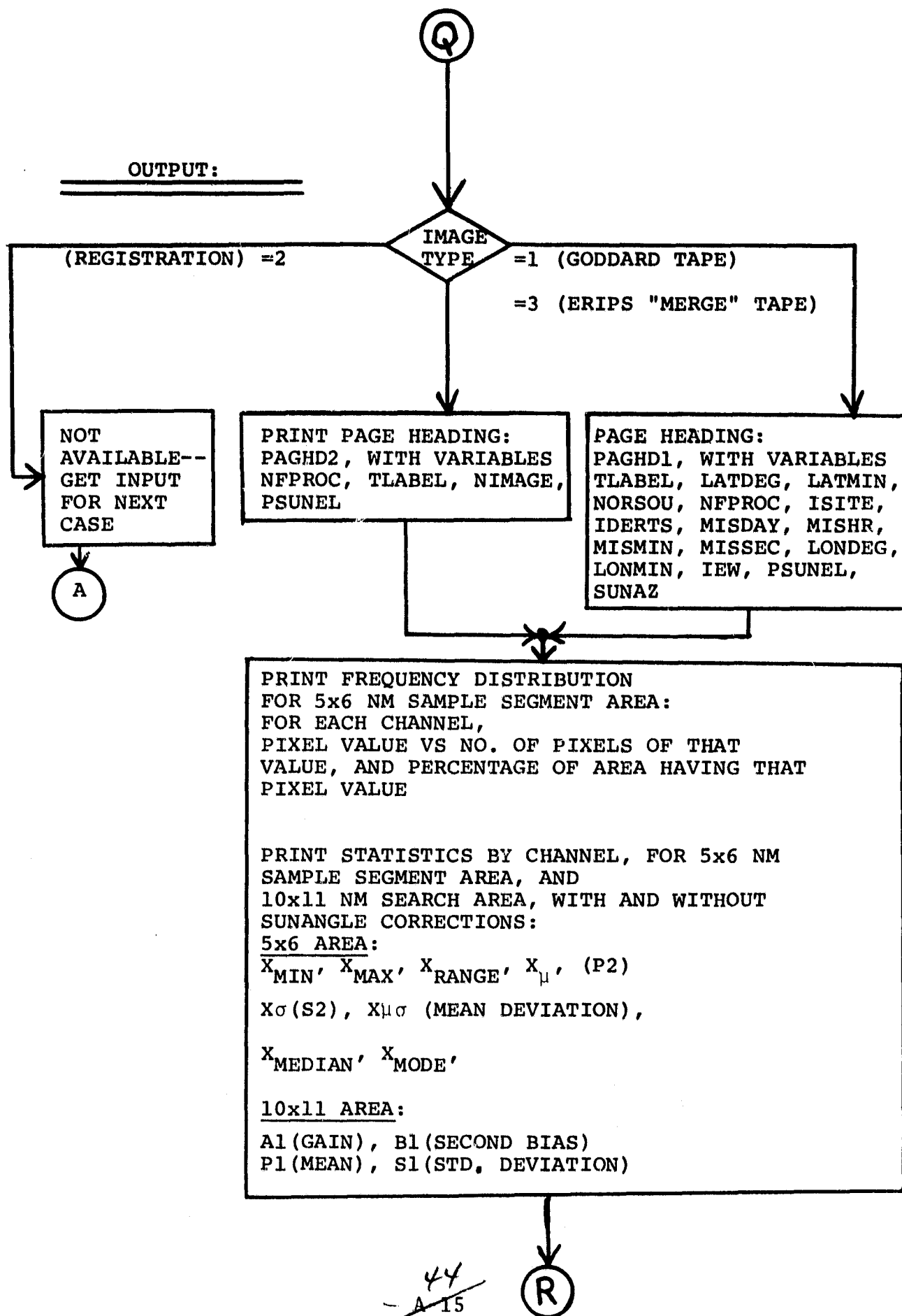
FREQUENCY DISTRIBUTION OF PFC GREY-LEVELS:

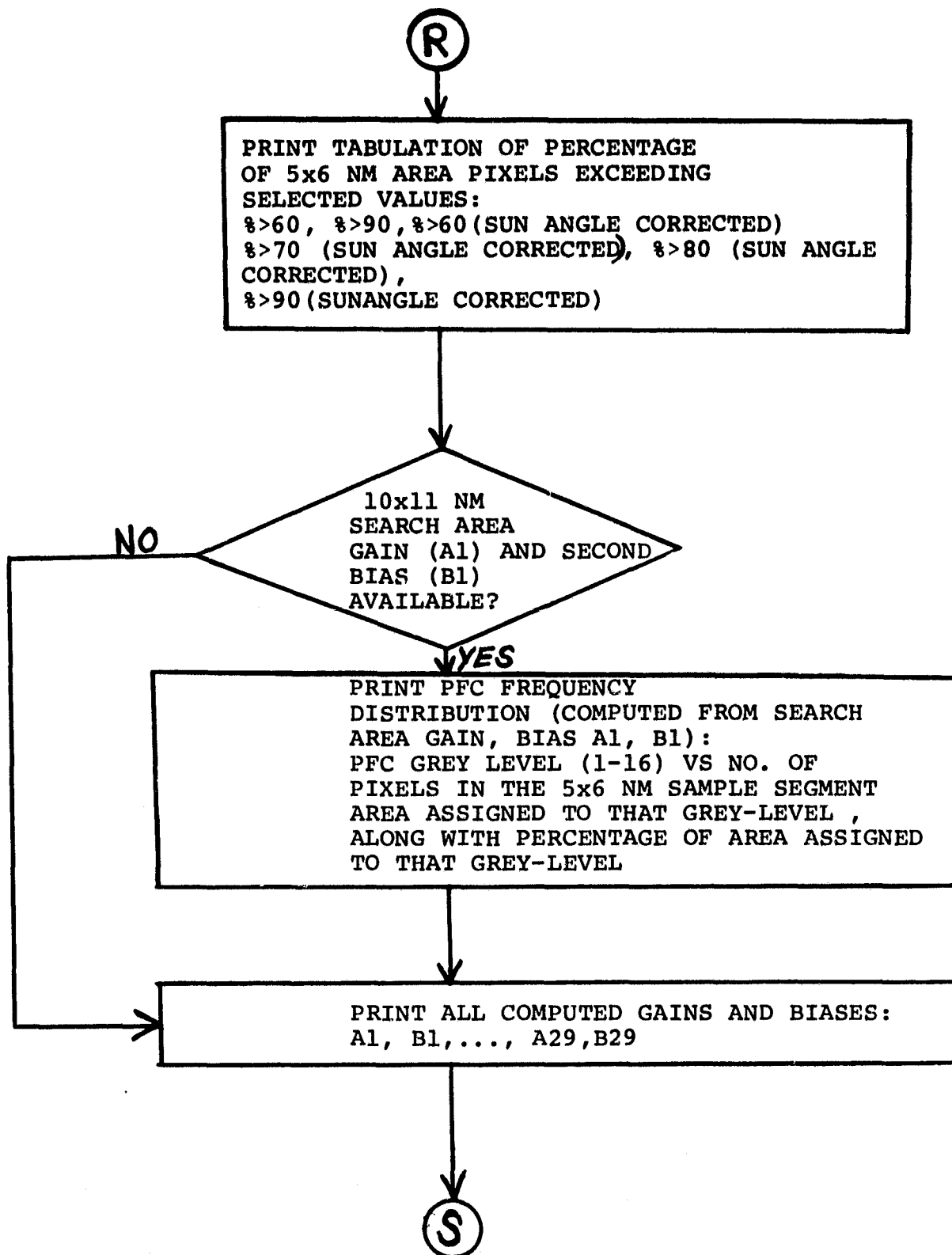
$HISPFC(i, IZ, 1) = HISPFC(i, IZ, 1) + IYHIST(i, J2, 1)$
= NO. OF Y-VALUES MAPPED INTO PFC
GREY-LEVEL IZ , $1 \leq IZ \leq 16$

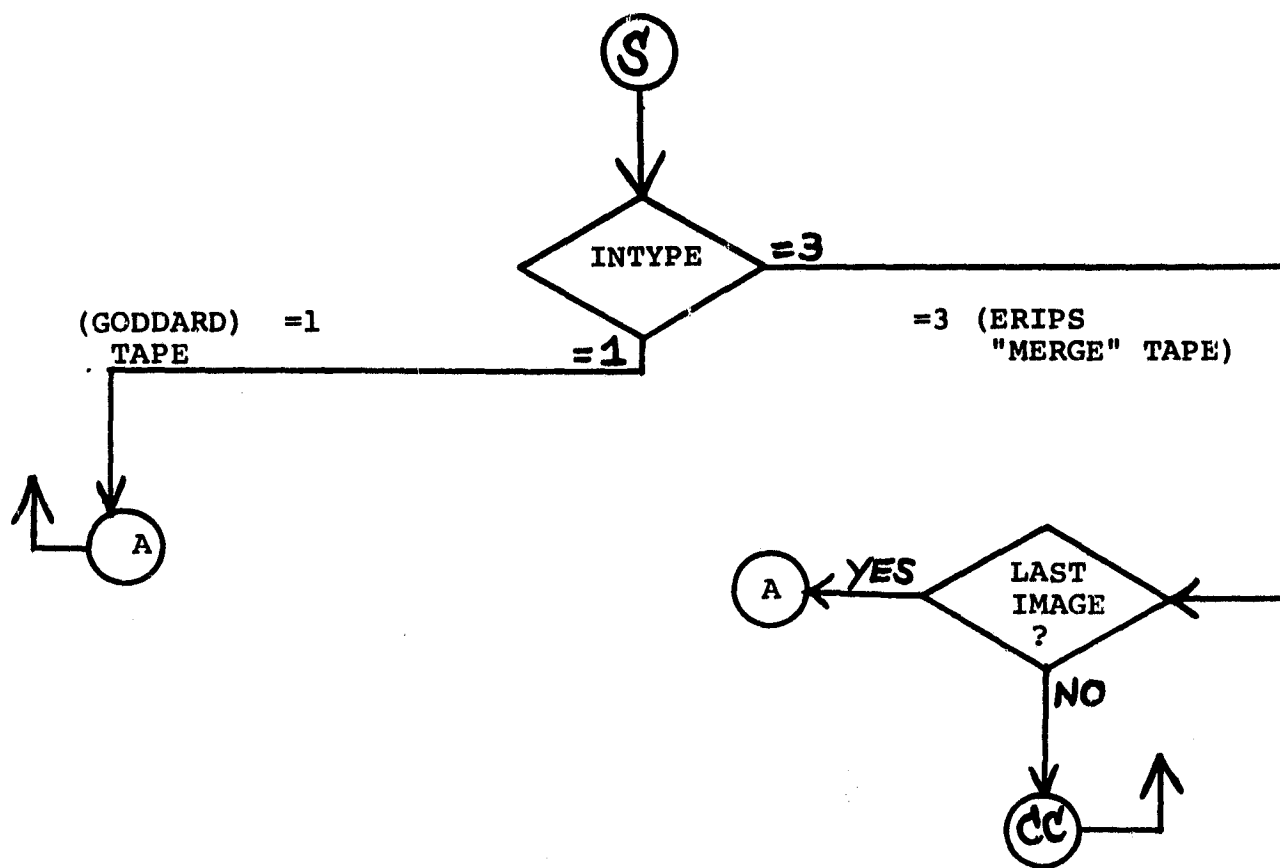
$HISPFC(i, IZ, 2) = \frac{HISPFC(i, IZ, 1)}{N_{YTOTAL}} * 100.0$

= % Y-VALUES IN PFC GREY LEVEL IZ









APPENDIX B
PFCGAB PROGRAM LISTINGS

26 OCT 76 10:50:16.867

FOR: PFCGAB,PFCGAB
UNIVAC 110R FORTRAN V EXEC 11 LEVEL 25A -(EXEC LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 26 OCT 76 AT 18:50:16

MAIN PROGRAM

STORAGE USED: CODE(1) 004053; DATA(0) 014301; BLANK COMMON(2) 000000

COMMON BLOCKS:

0003 PGLABL 000075
0004 STSX6 000110
0005 STIO11 000020
0006 STCOMP 000374
0007 HDATA 000026
0010 FREQ 004010
0011 PRCENT 000036
0012 PFCM 000200
0013 ALL 000012

EXTERNAL REFERENCES (BLOCK, NAME)

0014 TAPLAB
0015 TAPHDR
0016 FLDINT
0017 LIVERO
0020 PRXHIS
0021 PRSTAT
0022 PRPCT
0023 PFCMIS
0024 PRGAB
0025 NRNL\$
0026 SIN
0027 RNDUS
0030 HIO2\$
0031 SORT
0032 HERR2\$
0033 NSTOPS

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

BLOCK	TYPE	RELATIVE LOCATION	NAME
0001	00055	10L	
0001	000623	111L	
0001	000734	120L	
0001	000757	130L	
0001	003253	14066	
0001	001007	150L	
0001	001151	160L	
0001	002362	201L	
0001	000022	2276	
0001	002720	265L	
0001	000417	2902L	
0001	003112	296L	
0001	003201	310L	
0001	000324	3603	
0001	000411	4153	
0001	004047	1000L	
0001	002256	11276	
0001	002576	13276	
0001	003040	13226	
0001	003271	14146	
0001	003507	15026	
0001	001167	170L	
0001	002424	205L	
0001	002520	239L	
0001	002356	27L	
0001	002765	291L	
0001	003120	297L	
0001	003204	320L	
0001	000336	3676	
0001	003522	420L	
0001	001712	19236	
0001	002274	11336	
0001	002617	12446	
0001	003164	13656	
0001	003329	14326	
0001	003537	15146	
0001	001261	180L	
0001	002536	235L	
0001	002752	280L	
0001	003060	293L	
0001	003126	298L	
0001	003221	330L	
0001	003351	385L	
0001	000434	4266	
0001	001732	17276	
0001	000664	11516	
0001	002677	12616	
0001	001005	14016	
0001	003363	15316	
0001	000131	20L	
0001	002464	210L	
0001	002555	236L	
0001	000403	294L	
0001	003076	299L	
0001	003134	299L	
0001	000313	3456	
0001	000476	400L	
0001	000454	4356	
0001	002032	17516	
0001	002372	11576	
0001	002731	12736	
0001	003232	14006	
0001	003421	14576	
0001	003675	15516	
0001	000223	2001L	
0001	002502	220L	
0001	002566	240L	
0001	002762	290L	
0001	003104	295L	
0001	003141	300L	
0001	000329	3536	
0001	000367	4046	
0001	003552	440L	

0000	K	010002	XMEAN
0004	R	000044	XMODE
0000	R	000066	YMAX

0004	X	00014	MAX
00000	K	007706	X MNEW
00000	K	010044	Y

0000	R	010033	XLT
0004	R	000034	XMNDEV
0000	R	010034	XUT

0000	R	007722	XLO
0004	R	000010	XMIN
0004	R	000023	XRANGE
0000	R	000072	YRANGE

0300	R	00716	XHI
0304	R	00040	XMED
0310	R	00204	XPCT
0300	R	00062	YMIN

```

1  C  COMPILER ( DATA=SHORT )
2  C
3  C  PARAMETER  MCH=4
4  C
5  C  PARAMETER  NPFC=16, MAXPLI=257, NVTOTL= MCH*MAXPLI
6  C
7  C  PARAMETER  NVTX2 = NVTOTL*2 , NPFC2 = MCH*NPFC*2
8  C
9  C  LOGICAL
10 C  INTEGER  AIB1, ELFLG
11 C  GSFCIP,REGTP,ISTART,CHVEC,BLOCK,PIXELI,PIXEND,PIXINC
12 C
13 C  INTEGER  TPEOF, EDFSXP, TRMIN, TRMAX, TRUNC, SUNEL, SUNAZ
14 C
15 C  INTEGER  TAPFMT , OCH , TLABEL , EL , PSUNEL
16 C
17 C  DIMENSION  B1(MCH), A14(MCH), S1(MCH), P1(MCH)
18 C  DIMENSION  B2(MCH), A2(MCH), S2(MCH), P2(MCH)
19 C  DIMENSION  B3(MCH), A3(MCH), S3(MCH), P3(MCH)
20 C  DIMENSION  B4(MCH), A4(MCH), S4(MCH), P4(MCH)
21 C  DIMENSION  B5(MCH), A5(MCH), S5(MCH), P5(MCH)
22 C  DIMENSION  B6(MCH), A6(MCH)
23 C  DIMENSION  B7(MCH), A7(MCH)
24 C  DIMENSION  B8(MCH), A8(MCH), PCTX(NVTOTL), XPCT (MCH,MAXPLI)
25 C  DIMENSION  B9(MCH), A9(MCH)
26 C  DIMENSION  B10(MCH), A10(MCH)
27 C  DIMENSION  B11(MCH), A11(MCH), B12(MCH),A12(MCH),B13(MCH),A13(MCH)
28 C  DIMENSION  B14(MCH),A14(MCH),B15(MCH),A15(MCH),B16(MCH),A16(MCH)
29 C  DIMENSION  B17(MCH),A17(MCH),B18(MCH),A18(MCH),B21(MCH),A21(MCH)
30 C  DIMENSION  B22(MCH),A22(MCH),B23(MCH),A23(MCH),S23(MCH),P23(MCH)
31 C  DIMENSION  B24(MCH),A24(MCH),B25(MCH),A25(MCH)
32 C  DIMENSION  XMIN(MCH), XMAX(MCH), X RANGE(MCH), IXHIST(MCH,MAXPLI)
33 C
34 C  DIMENSION  YMIN(MCH), YMAX(MCH), Y RANGE(MCH), IYHIST(MCH,MAXPLI,2)
35 C
36 C  DIMENSION  XHED(MCH), XHODE(MCH), XHDELV(MCH)
37 C
38 C  DIMENSION  CMHDEV(MCH),CXHIN(MCH),CXHMAX(MCH),CMEAN(MCH),CMED(MCH)
39 C
40 C  DIMENSION  CMODE(MCH),CRANGE(MCH),CSTDDEV(MCH)
41 C
42 C  DIMENSION  CHVEC(MCH),BLOCK(6),IDATA(3950),IXH(NVTOTL),IYH(NVTX2)
43 C
44 C  DIMENSION  TRMIN(16), TRMAX(16), TRUNC(4,MCH,2), MPFC(NPFC2)
45 C
46 C  DIMENSION  PAGHD(43), PAGHD2(15), ICUT(6), NUMX(MCH), NUMY(MCH)
47 C
48 C  DIMENSION  GSCALE(6), BSCALE(6)
49 C
50 C

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00142 C DIMENSION XMNE*(MCH), SDNEW(MCH), XHI(MCH), XLO(MCH)
00143 C DIMENSION ICA(4), ICB(4), GAIN(32), BIAS(32), A(32), R(32)
00144 C DATA PAGSKP/('IH1')/, BADVAL/99999999/
00145 C DATA PAGHD1/('IH1 T5.5HTAPE: IX,A6, T41.9HEDAYHRMNS , T55,
00150 C 1 4HLAT= ,IX,13, T63,1H: , 12, IX, A1 / T5.5HFILE: ,IX,13, T21,
00151 C 2 8HSEGMENT: ,IX,14, T37,4H10: ,11, 13, 12, 12, 11, T54,5HLONG= ,
00152 C 3 IX,13, T63,1H: ,12,IX,A1, T75,9HSUN ELEV: ,IX,13, T91,7HSUN AZ: ,
00153 C 4 IX,13 )' /
00154 C DATA PAGHD2/('IH1/T5.5HFILE: IX, 13, T21, **MERGE TAPE: ** , 2X,
00155 C 1 A6,6X, **IMAGE NO. **,14,10X, **SUN ELEV= **,14) ' /
00156 C COMMON /PGLABL/ PAGHD1, PAGHD2, RFPROC, TLABEL, PSUNEL
00157 C COMMON /STX6/ A2,B2, XMIN, XMAX, X RANGE, P2, S2, XMNDEV, XMED,
00158 C 1 XMODE, CXMIN, CMAX, CRANGE, CMEAN, CSTDEV, CMNDEV, CMED, CMODE
00159 C COMMON /STIO11/ A1, B1, P1, S1
00160 C COMMON /STCOMP/ TRUNC, A3, B3, P3, S3, A4, B4, P4, S4, A5, B5,
00161 C PS, SS, A6, B6, A7, B7, A8, B8, A9, B9, A10, B10,
00162 C A11, B11, A12, B12, A13, B13, A14, B14, A15, B15, A16, B16,
00163 C A17, B17, A18, B18, A19, B19, A20, B20, A21, B21, A22, B22,
00164 C A23, B23, A24, B24, A25, B25, A26, B26, A27, B27,
00165 C A28, B28, A29, B29 , ICA , ICB
00166 C COMMON /HDATA/ SUNEL, SUNAZ, BO(MCH), AAI(MCH), ISITE, IDERTS,
00167 C MISDAY, MISHR, MISHIN, MISSEC, NORSOU, IEW, LATDEG,
00168 C LATHIN, LONDEG, LONMIN
00169 C COMMON /FREQ/ IXHIST , XPCT
00170 C COMMON /PERCENT/ PCTGT(MCH,6) , MINTST(6)
00171 C COMMON /PFCH/ HISPFC(MCH,NPFC,2)
00172 C COMMON /ALL/ INTYPE, RIMAGE, NCHOUT, WC, CHVEC, AIR3, ELFLG
00173 C EQUIVALENCE ( IXHIST(1,1), IXM(1) ) , ( IYHIST(1,1,1), IYH(1) )
00174 C EQUIVALENCE ( HPFC(1), HISPFC(1,1,1) ) , ( PCTX(1), XPCT(1,1) )
00175 C DATA TRMIN/ 4, 3, 5 , 2,10,10,10, 5,20,20,20, 7, 4, 4, 2 /
00176 C DATA TRMAX/ 120,120,120,61,80,80,80,40,60,60,60,30,80,80,40 /
00177 C DATA PI/3.1415927/ , SIN60/.86603/ , BLANK/' ' /
00178

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00173 109.
00177 110.
00177 111.
00177 112.
00177 113.
00177 114.
00201 115.
00201 116.
00201 117.
00203 118.
00203 119.
00203 120.
00203 121.
00205 122.
00205 123.
00210 124.
00210 125.
00210 126.
00210 127.
00210 128.
00210 129.
00211 130.
00211 131.
00211 132.
00211 133.
00211 134.
00211 135.
00211 136.
00211 137.
00211 138.
00211 139.
00212 140.
00213 141.
00214 142.
00215 143.
00215 144.
00217 145.
00220 146.
00221 147.
00222 148.
00223 149.
00224 150.
00225 151.
00225 152.
00226 153.
00231 154.
00232 155.
00232 156.
00234 157.
00234 158.
00237 159.
00241 160.
00241 161.
00241 162.
00242 163.
00244 164.
00244 165.
00245 166.

DATA /ICUT/ 60,90,60,70,80,90 /

DATA GSCALE/ .00135, .00055, .0225, .00135, .00055, .0225 /
      AB      A14      A15      A16      A17      A18
      B8      B14      B15      B16      B17      B18
DATA BSCALE/ .00135, .00055, .0225, .49865, .49345, .4771 /

DATA IC-/ 8, 5, 5, 10 / . ICB / 16, 26, 32, 13 /

EQUIVALENCE ( GAIN, A ) , ( BIAS, B )

.....
NAMelist /CARDIN/ GSFCTP, REGIP, MERGTP, NFILES, FSTART, NUMCH
      I      . EL . A . B
.....

INITIALIZATION

INUNIT = 1
TAPFMT = 0
NUMCH = 4
MAACH = MCH
DGTORD = PI/180.0
FSTART = 1
NFILES = 1
GSFCTP = 1
INITPE = 1
REGTP = 0
MERGTP = 0
EL = 0

DO I, 1, 1.32
  GAIN(I) = 0.0
  BIAS(I) = 0.0

      1
      READ( 5, CARDIN, END=1000 )
      IF ( GSFCTP .GT. 0 .OR. REGTP .GT. 0 .OR. MERGTP .GT. 0 ) GO TO 10
      GO TO 5

      10
      IF ( FSTART .LE. 0 ) GO TO 5
      LASTF = FSTART + NFILES - 1
      NFRDC = FSTART - 1

      C

```



```

00310 225.
00310 226.
00310 227.
00311 228.
00311 229.
00313 230.
00315 231.
00320 232.
00320 233.
00320 234.
00320 235.
00320 236.
00320 237.
00320 238.
00320 239.
00321 240.
00321 241.
00323 242.
00323 243.
00324 244.
00324 245.
00324 246.
00327 247.
00330 248.
00331 249.
00332 250.
00333 251.
00334 252.
00335 253.
00336 254.
00337 255.
00340 256.
00341 257.
00342 258.
00343 259.
00344 260.
00347 261.
00350 262.
00350 263.
00352 264.
00355 265.
00355 266.
00357 267.
00362 268.
00362 269.
00362 270.
00364 271.
00364 272.
00364 273.
00365 274.
00366 275.
00371 276.
00371 277.
00371 278.
00371 279.
00371 280.
00371 281.
00371 282.

C      IF ( IMTOT .GT. 0 ) GO TO 21
C      WRITE( 6, PAGSKIP )
C      WRITE( 6, '0000' ) NUNCH
C      7000 FORMAT( '//// SA, ***** TOTAL NO. OF CHANNELS REQUESTED TO RF PROC
C      ESSED IS', 15 // 12X, 'NO. OF CHANNELS MUST BE AN INTEGRAL MULTIPLE
C      2 OF 4. // 12X, 'THIS CASE NOT PROCESSED - PROCEEDING TO NEXT INPUT
C      3 CASE' )
C      WRITE( 6, PAGSKIP )
C      GO TO 5
C
C      21 IF( NIMAGE .GE. IMTOT ) GO TO 20
C      LSTART = 1
C      LEND = 117
C      LINC = 1
C      PIXEL1 = 196
C      PIXEND = 1
C      PIXINC = 1
C      BLOCK(1) = LSTART
C      BLOCK(2) = LEND
C      BLOCK(3) = LINC
C      BLOCK(4) = PIXEL1
C      BLOCK(5) = PIXEND
C      BLOCK(6) = PIXINC
C      NLINES = LEND - LSTART + 1
C      NPIXEL = PIXEND - PIXEL1 + 1
C      DO 22 I=1, NVTOTL
C      PCTX(I) = 0.0
C      IXH(I) = 0
C      22
C      DO 23 I=1, NVTX2
C      IYH(I) = 0
C      23
C      DO 24 I=1, NPFC1
C      HPFC(I) = 0.0
C      24
C      NC = 4
C
C      JJ = NIMAGE * 4
C      JJ 26 I=1, NC
C      26 CHVE(I) = JJ + 1
C
C      ..... COMPUTE 10 X 11 AREA GAIN * BIAS
C      ..... A1, B1
C      .....

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00371      2830
00373      2840
00375      2850
00377      2860
00379      2870
00381      2880
00383      2890
00385      2900
00387      2910
00389      2920
00391      2930
00393      2940
00395      2950
00397      2960
00399      2970
00401      2980
00403      2990
00405      3000
00407      3010
00409      3020
00411      3030
00413      3040
00415      3050
00417      3060
00420      3070
00422      3080
00424      3090
00426      3100
00428      3110
00430      3120
00432      3130
00434      3140
00436      3150
00438      3160
00440      3170
00442      3180
00444      3190
00446      3200
00448      3210
00450      3220
00452      3230
00454      3240
00456      3250
00458      3260
00460      3270
00462      3280
00464      3290
00466      3300
00468      3310
00470      3320
00472      3330
00474      3340
00476      3350
00478      3360
00480      3370
00482      3380
00484      3390
00486      3400

C      AIB1 = .FALSE.
C      IF( IABFLG .GT. 0 ) GO TO 27
C      IF( INTYPE .EQ. 1 ) GO TO 29
C      GO TO 2902
C      27 AIB1 = .TRUE.
C      J = NIMAGE * 4
C      DO 28 I=1,NC
C      JJ = J + I
C      A1(I) = GAIN(JJ)
C      28 B1(I) = BIAS(JJ)
C      GO TO 2902
C      29 AIB1 = .TRUE.
C      DO 2901 I=1,NC
C      A1(I) = A1(I)
C      2901 B1(I) = B0(I)/A1(I)
C      2902 CONTINUE
C      CALL FLOINT( BLOCK, CHVEC, NC )
C      LINCNT = 0
C      ***** READ INPUT TAPE AND OBTAIN 5 X 6 AREA FREQUENCY DIST.
C      DO 50 I=1,NLINES
C      CALL LINERD( IDATA, IPEOF )
C      IF ( IPEOF .LT. 0 ) GO TO 55
C      LINCNT = LINCNT + 1
C      DO 40 J=1,NC
C      OCH = J
C      NREG = ( J-1 ) * NPIXEL
C      DO 30 K=1,NPIXEL
C      NPT = NREG + K
C      IPIX = IDATA(NPT)
C      IF ( IPIX .LT. MINPIX ) IPIX = MAXPLI - 1
C      IF ( IPIX .GT. MAXPIX ) IPIX = MAXPLI - 1
C      IPIX = IPIX + 1

```

```

00453 3410 IAHIST( OCH , IPIX ) = IAHIST( OCH , IPIX ) + 1
00454 3420 CONTINUE
00455 3430 CONTINUE
00456 3440 C
00457 3450 C HCHOUT = NC
00458 3460 C
00459 3470 C 55 NIMAGE = NIMAGE + 1
00460 3480 C
00461 3490 C WRITE(6,9000) NFPKOC, LINCNT, NIMAGE
00462 3500 C
00463 3510 C 9000 FORMAT( / 5X, 'FROM PFCGAB:' / 5X, '-----' / 5X,
00464 3520 C
00465 3530 C 1 'FILE NO.' , 15 , 3X , ' , NO. SCAN LINES READ = ' , 17 , 3X ,
00466 3540 C
00467 3550 C 2 ' , FOR IMAGE NO.' , 15 )
00468 3560 C
00469 3570 C IF ( TPEOF .LT. 0 ) GO TO 20
00470 3580 C
00471 3590 C
00472 3600 C
00473 3610 C
00474 3620 C
00475 3630 C
00476 3640 C
00477 3650 C
00478 3660 C
00479 3670 C
00480 3680 C
00481 3690 C
00482 3700 C
00483 3710 C
00484 3720 C
00485 3730 C
00486 3740 C
00487 3750 C
00488 3760 C
00489 3770 C
00490 3780 C
00491 3790 C
00492 3800 C
00493 3810 C
00494 3820 C
00495 3830 C
00496 3840 C
00497 3850 C
00498 3860 C
00499 3870 C
00500 3880 C
00501 3890 C
00502 3900 C
00503 3910 C
00504 3920 C
00505 3930 C
00506 3940 C
00507 3950 C
00508 3960 C
00509 3970 C
00510 3980 C
00511 3990 C
00512 4000 C

```

COMPUTE STATISTICS, GAINS, BIASES FOR THE CURRENT FILE
 100 CONTINUE
 C..... FOR THE 10 X 11 NM SEARCH AREA:
 ARITHMETIC MEAN = PI
 STANDARD DEVIATION = SI
 COMPUTE A9,B9; A10,B10; A24,B24
 C.....
 IF(.NOT. A10) GO TO 111
 DO 110 I=1,NC
 PI(I) = -SI(I) + (128.0/A1(I))
 SI(I) = 42.666667/A1(I)
 A9(I) = 256.0/(4.0 * SI(I))
 B9(I) = - (PI(I) - 2.0 * SI(I))
 A10(I) = 256.0/(5.0 * SI(I))
 B10(I) = - (PI(I) - 2.5 * SI(I))
 A24(I) = ICA(I)
 B24(I) = - (PI(I) - ICB(I)) * ICA(I)
 GO TO 115


```

457. 120 SUNX = SUMX + ( IX * K )
458. IASQ = IX * IX
459. SUMXSQ = SUMXSQ + ( K * IASQ )
460. NUMVAL = NUMVAL + K
461. CONTINUE
130 C
462. NUMX(I) = NUMVAL
463. C
464. C
465. DO 140 J=MAX(I),-1
466. IF( MAXVAL .GT. 0 ) GO TO 150
467. JJ = J
468. K = IXHIST(I,JJ)
469. IF( K .EQ. 0 ) GO TO 140
470. MAXVAL = JJ
471. C
472. CONTINUE
140 C
473. C
474. CONTINUE
150 C
475. C
476. NHALF = NUMX(I)/2
477. FNUM = NUMX(I)
478. SUMSQ = SUMX * SUMX
479. XMEAN = SUMX/FNUM
480. C
481. P2(I) = XMEAN
482. C
483. XMIN(I) = MINVAL - 1
484. XMAX(I) = MAXVAL
485. X RANGE(I) = 4MAX(I) - XMIN(I)
486. VAR = ( SUMXSQ - SUMSQ/FNUM ) / ( FNUM - 1.0 )
487. C
488. S2(I) = SQRT(VAR)
489. A2(I) = 256.0 / ( 6.0 * S2(I) )
490. B2(I) = - ( P2(I) - ( 3.0 * S2(I) ) )
491. C
492. A6(I) = 256.0 / ( 4.0 * S2(I) )
493. B6(I) = - ( P2(I) - ( 2.0 * S2(I) ) )
494. C
495. C
496. A25(I) = ICA(I)
497. B25(I) = - ( P2(I) - ICB(I) ) * ICA(I)
498. C
499. C
500. MODE = 0
501. MODIST = 0
502. MEDIAN = 0
503. MEDIST = 0
504. DO 170 J=MINVAL,MAXVAL,1
505. JJ = J
506. K = IXHIST(I,JJ)
507. FLK = K
508. XPC(I,JJ) = FLK/FNUM * 100.0
509. IF( K .LE. MODIST ) GO TO 160
510. MODIST = K
511. MODE = JJ
512. IF ( MEDIAN .GT. 0 ) GO TO 170
513. MEDIST = MEDIST + K
514. C
515. C
516. C
517. C
518. C
519. C
520. C
521. C
522. C
523. C
524. C
525. C
526. C
527. C
528. C
529. C
530. C
531. C
532. C
533. C
534. C
535. C
536. C
537. C
538. C
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00651  IF ( MEDTEST .GE. NHALF)  MEDIAN = JJ
00653  CONTINUE
00655  C
00657  XMODE(I) = MODE - 1
00659  XMED(I) = MEDIAN - 1
00661  MINVAL = XMIN(I) + 1.0
00663  MAXVAL = XMAX(I) + 1.0
00665  SUMX = 0.0
00667  DO 180 J=MINVAL,MAXVAL,1
00669  RX = IXHIST(I,J)
00671  IF ( RX.EQ. 0) GO TO 180
00673  FNX = RX
00675  X = J - 1
00677  SUMX = SUMX + ( FNX * ABS( X-XMEAN) )
00679  CONTINUE
00681  C
00683  XMNDEV(I) = SUMX/FNUM
00685  C
00687  A7(I) = 256.0/( 6.0 * XMNDEV(I) )
00689  B7(I) = - ( P2(I) - ( 3.0 * XMNDEV(I) ) )
00691  C
00693  A11(I) = 256.0/( 5.0 * S2(I) )
00695  B11(I) = - ( P2(I) - 2.5 * S2(I) )
00697  C
00699  A12(I) = 256.0/( 5.0 * XMNDEV(I) )
00701  B12(I) = - ( P2(I) - 2.5 * XMNDEV(I) )
00703  C
00705  A13(I) = 256.0/( 4.0 * XMNDEV(I) )
00707  B13(I) = - ( P2(I) - 2.0 * XMNDEV(I) )
00709  C
00711  C200 CONTINUE
00713  C
00715  C***** COMPUTE A19,B19, A20,B20 --- BANDS 1,2,4 AND 7,3,4
00717  C
00719  DO 600 I=1,4
00721  XH1(I) = P2(I) + 3.0 * S2(I)
00723  XLO(I) = P2(I) - 3.0 * S2(I)
00725  C
00727  XH1(4) = 2.0 * XH1(4)
00729  XLO(4) = 2.0 * XLO(4)
00731  C
00733  DO 640 J=1,2
00735  TEST1 = -1.0 * 10.**8
00737  TEST2 = 1.0 * 10.**8
00739  C
00741  DO 610 I=1,4
00743  IF ( J.EQ. 1 .AND. I.EQ. 3) GO TO 610
00745  IF ( J.EQ. 2 .AND. I.EQ. 1) GO TO 610
00747  C
00749  TEST1 = AMAX1( TEST1, XH1(I) )
00751  TEST2 = AMIN1( TEST2, XLO(I) )
00753  C
00755  C610 CONTINUE
00757  C

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00740 GO TO (620 , 630) , J
 00741
 00742 A19 = 256.0/(TEST1 -TEST2)
 00743 B19 = -TEST2
 00744
 00745 GO TO 640
 00746
 00747 A20 = 256.0/(TEST1-TEST2)
 00748 B20 = -TEST2
 00749
 00750 CONTINUE
 00751
 00752 C..... COMPUTE A21,B21, A22,B22 --- ITERATE ON 3 STD DEV. TRUNC.
 00753
 00754 DO 720 J=1,2
 00755 DO 710 I=1,NC
 00756 GO TO (650, 660) , J
 00757 MINVAL = P2(I) - 3.0 * S2(I) + 1.5
 00758 MAXVAL = P2(I) + 3.0 * S2(I) + 1.5
 00759
 00760 GO TO 670
 00761 MINVAL = AMNEW(I) - 3.0 * SDNEW(I) + 1.5
 00762 MAXVAL = AMNEW(I) + 3.0 * SDNEW(I) + 1.5
 00763
 00764 SUMX = 0.0
 00765 SUMXSQ = 0.0
 00766 FNTOT = 0.0
 00767 DO 680 K=MINVAL,MAXVAL,1
 00768 X = K - 1
 00769 FNX = I*HIST(I,K)
 00770 SUMX = SUMX + FNX * X
 00771 FNTOT = FNTOT + FNX
 00772 SUMXSQ = SUMXSQ + FNX * (X * X)
 00773
 00774 FNM1 = FNTOT - 1.0
 00775 VAR = (SUMXSQ - (SUMX*SUMX/FNTOT))/FNM1
 00776 SDNEW(I) = SQRT(VAR)
 00777 AMNEW(I) = SUMX/FNTOT
 00778
 00779 GO TO (690 , 700) , J
 00780 A21(I) = 256.0/(6.0 * SDNEW(I))
 00781 B21(I) = - (AMNEW(I) - 3.0 * SDNEW(I))
 00782
 00783 GO TO 710
 00784 A22(I) = 256.0/(6.0 * SDNEW(I))
 00785 B22(I) = - (AMNEW(I) - 3.0 * SDNEW(I))
 00786
 00787 CONTINUE
 00788
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01060      686.
01061      687.
01061      688.

C 720 CONTINUE
C
C ***** COMPUTE A20,B25. A27,B27, A28,B28. A29,B29
C          BAYS 1,2,4 AND 2,3,4 FOR 10 X 11 MEAN,STD DEV AND
C          5 X 6 MEAN, STD DEV
C *****
C          KK = 1
C          IF ( .NOT. AIB1) KK = 2
C
C 730 CONTINUE
C          DU 900 J=1,2
C          XLO(1) = 0.0
C          DO 760 I=1,4
C          IF ( J.EQ. 1 .AND. I.EQ. 3) GO TO 760
C          IF ( J.EQ. 2 .AND. I.EQ. 1) GO TO 760
C          GO TO ( 740 , 750) , KK
C 740      XLO(1) = XLO(1) + P1(1)
C          GO TO 760
C 750      XLO(1) = XLO(1) + P2(1)
C 760 CONTINUE
C          GO TO ( 770 , 780 ) , KK
C 770      XLO(1) = ( XLO(1) + P1(4) )/3.0
C          GO TO 790
C 780      XLO(1) = ( XLO(1) + P2(4) )/3.0
C 790      XHI(1) = -1.0 + 10.0**6
C          DO 830 I=1,4
C          IF ( J.EQ. 1 .AND. I.EQ. 3) GO TO 830
C          IF ( J.EQ. 2 .AND. I.EQ. 1) GO TO 830
C          GO TO ( 800 , 810) , KK
C 800      STDDEV = S1(I)
C          XMEAN = P1(I)
C

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01063 690.
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01080 707.
01081 708.
01082 709.
01083 710.
01084 711.
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01091 718.
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01118 745.
01119 746.

      GO TO 820
C 810 STDDEV = S2(I)
      XMEAN = P2(I)
C
C 820 GO TO ( 822 , 822 , 822 , 821 ) , I
C
C 821 STDDEV = 2.0 * STDDEV
      XMEAN = 2.0 * XMEAN
C
C 822 TEST1 = 3.0 * STDDEV + XMEAN - XLO(I)
      TEST2 = 3.0 * STDDEV - XMEAN + XLO(I)
C
C TEST1 = ANAXI( TEST1 , TEST2 )
C
C XHI(I) = ANAXI( TEST1 , XHI(I) )
C
C 830 CONTINUE
C
C XHI(2) = XLO(I) + XHI(I)
C
C XLO(2) = XLO(I) - XHI(I)
C
C GO TO ( 840 , 870 ) , KK
C
C 840 GO TO ( 850 , 860 ) , J
C
C 850 A26 = 256.0 / ( XHI(2) - XLO(2) )
      B26 = -XLO(2) * A26
C
C GO TO 900
C
C 860 A27 = 256.0 / ( XHI(2) - XLO(2) )
      B27 = -XLO(2) * A27
C
C GO TO 900
C
C 870 GO TO ( 880 , 890 ) , J
C
C 880 A28 = 256.0 / ( XHI(2) - XLO(2) )
      B28 = -XLO(2) * A28
C
C GO TO 900
C
C 890 A29 = 256.0 / ( XHI(2) - XLO(2) )
      B29 = -XLO(2) * A29
C
C 900 CONTINUE
C
C IF ( KK .EQ. 2 ) GO TO 910
      KK = 2
      GO TO 730
C
C

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01205 005.
01206 006.
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01256 056.
01257 057.

C 220 P4(UCH) = XMEAN
      S4(UCH) = STDEV
      A4(UCH) = 256.0/( 6.0 * S4(UCH) )
      B4(UCH) = - ( P4(UCH) - ( 3.0 * S4(UCH) ) )
C
C 230 GO TO 240
C
C 230 P5(UCH) = XMEAN
      S5(UCH) = STDEV
      A5(UCH) = 256.0/( 6.0 * S5(UCH) )
      B5(UCH) = - ( P5(UCH) - ( 3.0 * S5(UCH) ) )
C
C 230 GO TO 240
C
C 235 P23(UCH) = XMEAN
      S23(UCH) = STDEV
      A23(UCH) = 256.0/( 6.0 * S23(UCH) )
      B23(UCH) = - ( XMEAN - 3.0 * STDEV )
C
C 240 GO TO 240
C
C 236 P23(UCH) = BADVAL
      S23(UCH) = BADVAL
      A23(UCH) = BADVAL
      B23(UCH) = BADVAL
C 240 CONTINUE
C
C 250 CONTINUE
C
C ..... 3-SIGMA BIAS, RR, AND SCALING FACTOR, A8
C ..... COMPUTE A8, B8, A14, R14, ... , A18, B18
C
C NC = 4
C
C DO 305 K=1,4
C   GSC = GSCALE(K)
C   BSC = BSCALE(K)
C
C DO 320 I=1,NC
C   IF I=1
C     NRCUT = GSC * NUMA(I) * 0.5
C     NUMUT = NRCUT
C     NUMLT = NRCUT
C     MINVAL = XMIN(I) + 1.1
C     MAXVAL = XMAX(I) + 1.1
C     NUT = 0
C     NLT = 0
C     XLI = AMIN(I)
C     XUI = AMAX(I)

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01260 DO 260 J=MINVAL,MAXVAL,1
01263 IF ( NLT .GE. NUMLT ) GO TO 265
01265 JJ = IAHIST(I1, J)
01266 NLT = NLT + JJ
01267 XLT = J - 1
01268 C 260 CONTINUE
01269 C
01270 DO 270 J=MAXVAL,MINVAL,-1
01272 IF ( NLT .GE. NUMLT ) GO TO 280
01275 JJ = IAHIST(I1, J)
01277 NLT = NLT + JJ
01279 XLT = J - 1
01280 C 270 CONTINUE
01281 C
01282 DO 280 CONTINUE
01283 C
01284 RNEW = XLT - XLT
01285 C 285
01286 IF ( RNEW .GT. 0.0 ) GO TO 290
01287 C
01288 GAIN(I) = 0.0
01289 C
01290 GO TO 291
01291 GAIN(I) = 256.0/RNEW
01292 C 290
01293 IF ( N .LE. 3 ) GO TO 293
01294 C
01295 MAXVAL = P2(I1) + 1.5
01296 MINVAL = AMIN(I1) + 1.5
01297 NRCUT = USC * NUMX(I1) + 0.5
01298 NLT = 0
01299 XLT = AMIN(I1)
01300 C
01301 DO 292 L=MAXVAL,MINVAL,-1
01302 C
01303 IF ( NLT .GE. NRCUT ) GO TO 293
01304 NLT = NLT + IAHIST(I1,L)
01305 XLT = L - 1
01306 C 292 CONTINUE
01307 C
01308 BIAS(I) = -XLT
01309 C
01310 GO TO ( 294,295, 296, 297, 298, 299 ) , N
01311 C 293
01312 A4(I1) = GAIN(I1)
01313 A4(I1) = BIAS(I1)
01314 GO TO 300
01315 C 294
01316 A4(I1) = GAIN(I1)
01317 A4(I1) = BIAS(I1)
01318 GO TO 300
01319 C 295
01320 A14(I1) = GAIN(I1)
01321 A14(I1) = BIAS(I1)
01322 GO TO 300
01323 C 296
01324 A15(I1) = GAIN(I1)
01325 A15(I1) = BIAS(I1)
01326 GO TO 300
01327 C
01328 C
01329 C
01330 C
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01332 C
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01397 974.
01398 975.
01399 976.
01400 977.
01401 978.
01402 979.
01403 980.
01404 981.

C 297 A16(I1) = GAIN(I1)
      B16(I1) = BIAS(I1)
      GO TO 300
C 298 A17(I1) = GAIN(I1)
      B17(I1) = BIAS(I1)
      GO TO 300
C 299 A18(I1) = GAIN(I1)
      B18(I1) = BIAS(I1)
C 300 CONTINUE
C 305 CONTINUE
C ..... FOR THE 5 X 6 NM SAMPLE SEGMENT AREA :
C      X > 60 BRIGHTNESS
C      X > 90
C      X > ( SIN SUN ELEV)-1 ~ ( 60 * SIN 60 )
C      X > : : : (70 * SIN 60)
C      X > : : : (80 * SIN 60)
C      X > : : : (90 * SIN 60)
C .....
      NTEST = 0
      IF ( .NOT. ELFLG ) NTEST = 2
C      DO 330 J=1,NTEST
C      GO TO ( 310, 310, 320, 320, 320, 320 ), J
C 310 MINTST(J) = ICUT(J)
C      GO TO 330
C 320 FMIN = ICUT(J)
      MINTST(J) = ( FMIN * CFACT ) + 0.5
C 330 CONTINUE
      NC = 4
      DO 370 I=1,NC
      IF ( I ) = 1
      FTOTAL = HUMX(I)
      MAVAL = HUMX(I) + 1.0

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[illegible]

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01455 MAXVAL = XMAX(I) + 1.0
01456 DO 400 J=MINVAL,MAXVAL,1
01461 JJ = J
01462 NVAL = IXHIST(I,J)
01463 IF ( NVAL .EQ. 0 ) GO TO 400
01464 X = JJ - 1
01465 Y = A(I) * ( X + B(I) ) + .5
01466 IF ( Y .LT. 0.0 ) Y = 0.0
01471 Y = Y + 1.0
01472 IF ( Y .GT. FMAX ) Y = FMAX
01473 IY = Y
01474 IYHIST(I,Y,1) = IYHIST(I,Y,1) + NVAL
01475 C 400 CONTINUE
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26 OCT 76 18:50:25.01

FOR HISTX
UNIVAC 1108 FORTRAN V EXEC 11 LEVEL 25A - (EXEC8 LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 26 OCT 76 AT 18:50:25

SUBROUTINE PRXHIS ENTRY POINT 000362

STORAGE USED: CODE(1) 000376; DATA(0) 000103; BLANK COMMON(2) 000000

COMMON BLOCKS:

0003 ALL 000010
0004 FREQMD 000064
0005 FREQ 000010
0006 STSX6 000020

EXTERNAL REFERENCES (BLOCK, NAME)

0007 HNCUDS
0010 N1025
0011 NWDUS
0012 N1015
0013 NERR35

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0000 000001 1000F 0001 000010 131G 0001 000114 140G
0001 000005 212G 0001 000213 216G 0001 000220 223G
0001 000247 244G 0001 000256 253G 0001 000331 277G
0000 R 000001 BAND 0000 000002 BLANK 0000 000004 82
0000 000010 1XN 0000 000005 INJPS 0000 000000 INTYPE
0000 000012 1XN 0000 000004 LXOUT 0000 000011 1X1
0000 000020 1XN 0000 000002 L1 0000 000025 L2
0000 000005 NCHAN 0000 000002 NCHOUT 0000 000004 NCVEC
0000 000017 NPK 0000 000002 NVAL 0000 000014 NWRITE
0004 R 000004 OUTREC 0000 000002 PCT 0000 000004 PCTFMT
0000 R 000007 XN 0000 000004 APCT 0000 000006 X1

0000 000033 200DF 0001 000201 200G
0001 000226 231G 0001 000235 237G
0001 000315 301G 0000 000000 A2
0000 000000 DASH 0004 R 000000 MDEFEG
0000 000023 1X 0005 000000 1XN
0000 000021 J 0000 000022 JJ
0000 000016 NBEG 0003 000003 NC
0000 000001 NIMAGE 0000 000015 NLAST
0000 000013 NX 0000 000003 NAFMT
0000 000014 XMAX 0006 R 0000010 XMIN

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COMPILER (DATA=SHORT)
SUBROUTINE PRXHIS
PARAMETER MCH=4
PARAMETER MAXPL1 = 257
DIMENSION NCVEC(MCH)
COMMON /ALL/ INTYPL, NIMAGE, NCHOUT, NC, NCVEC
DATA DASH/'-----'/, BAND/'BAND ' /, BLANK/'

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00111 DATA 'AFHT/(1 16 )', PCTFHT/'(F6.1)'/
00112 COMMON /FREQHD/ HDFREQ(44), OUTREC(8)
00113 DATA HDFREQ/'(//// T47, 11HS X 6 AREA / T46,246,A1// T42,
00114 1 22HFREQUENCY DISTRIBUTION / T41, 4A6,A1 /// 20X, (A5,12,
00115 2 14X) / 14X, (2A6,A4,5X) /2X, 5HPixel /2X,SHVALUE,9X,
00116 3 (4HFREQ ,6X, 1HS, 10X) /2X,6H-----,7X, (A6,3X,A5,
00117 4 7X) , , /
00118 COMMON /FREQ/ IXH(NCH,MAXPL1), XPCI(MCH,MAXPL1)
00119 COMMON /STEX6/ A2(MCH), B2(MCH), XMIN(MCH), XMAX(MCH)
00120 NCHAN = NCHOUT
00121 XI = 1.3E36
00122 XN = 0.5
00123 DO 10 IC I=1,NCHAN,1
00124 IF ( XMIN(I) .LT. A1 ) XI = XMIN(I)
00125 IF ( XMAX(I) .GT. XN ) XN = XMAX(I)
00126 CONTINUE
00127 IXI = XI
00128 IXN = XN
00129 NX = IXN - IXI + 1
00130 IF ( NCHAN / 4 + 1 ) NWRITE = 1
00131 HDFREQ(3) = 6H.5 X 6
00132 HDFREQ(4) = 6H AREA
00133 HDFREQ(5) = 6HSHPIXE
00134 HDFREQ(27) = 6HSHPIXE
00135 HDFREQ(28) = 6H/2X,
00136 HDFREQ(29) = 6HSHVALL
00137 HDFREQ(30) = 6HE ,9X,
00138 NLAST = 0
00139 DO 50 I=1,NWRITE,1
00140 NREG = NLAST + 1
00141 NLAST = NREG + 3
00142 IF ( 1.EV.NWRITE ) NLAST = NCHAN
00143 NPR = IANST NLAST - NREG + 1 )
00144 ENCODE(6,1170, HDFREQ(18) ) NPR
00145 ENCODE(6,1100, HDFREQ(23) ) NPR
00146 ENCODE(6,1100, HDFREQ(31) ) NPR
00147 ENCODE(6,1103, HDFREQ(39) ) NPR
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00200 73. C 1000 FORMAT( 3X, 11, 2X )
00201 74. C
00202 75. C
00203 76. C
00204 77. C
00205 78. C WRITE(6,HDFRIN) ( DASH, K=1,3), ( DASH, K=1,5 ),
00206 79. C 1 ( BAND, NVEEC(K), K=NBEG,NLAST,1 ) ,
00207 80. C 2 ( DASH,DASH,DASH, K=NBEG,NLAST,1 ) ,
00208 81. C 3 ( DASH,DASH, K=NBEG,NLAST,1)
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END OF COMPILATION: 10 DIAGNOSTICS.
HISTX CODE SYMBOLIC
HISTX CODE RELOCATABLE

21 OCT 76 17:11:03 0 01506646 14 121 (DELETED)
21 OCT 76 17:11:03 0 01511304 14 121 (DELETED)
0 01511350 14 34

9 FOR: PSTAT PSTAT
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A - (EXEC8 LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 26 OCT 76 AT 18:50:26

26 OCT 76

18:50:26.683

SUBROUTINE PRSTAT ENTRY POINT 000702

STORAGE USED: CODE(1) 000715; DATA(0) 000307; BLANK COMMON(2) 000000

COMMON BLOCKS:

0003 ST5X6 000110
0004 ST1011 000020
0005 ALL 000010

EXTERNAL REFERENCES (BLOCK, NAME)

0006 RWDS
0007 RI025
0010 NI015
0011 NERR35

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001	000310	10L	000164	1000F	0001	000366	15L	000414	271	0001	000170	2000F
0001	000035	202G	000072	2159	0001	000104	225G	000119	235G	0001	000130	245G
0001	000142	255G	000154	265G	0001	000163	274G	000173	300F	0001	000211	304G
0001	000251	316G	000257	322G	0001	000276	333G	000304	337G	0001	000314	347G
0001	000522	35L	000352	361G	0001	000360	365G	000402	376G	0001	000345	40L
0000	000177	4000F	000410	402G	0001	000420	412G	000446	422G	0001	000506	434G
0001	000514	440G	000533	450G	0001	000541	454G	000567	470G	0001	000601	500G
0000	000203	5000F	000610	507G	0001	000642	517G	000650	523G	0001	000625	6L
0001	000656	60L	000207	6000F	0000	000213	7000F	000220	7001F	0000	000225	8000F
0000	000240	8001F	000244	8002F	0000	000247	8003F	000233	8004F	0004	000000	A1
0003	000000	A2	000136	BAND	0004	000074	B1	000060	B2	0003	000064	CMEAN
0003	000100	CMED	000074	CMANDEV	0003	000104	CMODE	000040	CRANGE	0003	000070	CSTDEV
0003	000054	CXMAX	000050	CKMIN	0000	000137	DASH	000040	CRANGE	0003	000070	CSTDEV
0000	000144	DOAT	000143	HELPS	0000	000141	HSUN	000040	CRANGE	0003	000070	CSTDEV
0000	000155	J	000257	INJPS	0005	000000	INTYPE	000040	CRANGE	0003	000070	CSTDEV
0000	000163	L	000162	JJJ	0000	000160	J1	000040	CRANGE	0003	000070	CSTDEV
0005	000002	LCHOUT	000046	LINLAR	0000	000152	NBEG	000040	CRANGE	0003	000070	CSTDEV
0000	000157	HLAB1	000004	NCVEC	0000	000153	NDIF	000040	CRANGE	0003	000070	CSTDEV
0003	000010	STAT1	000151	NLAST	0000	000150	NSTAT3	000040	CRANGE	0003	000070	CSTDEV
0003	000030	S2	000050	STAT2	0004	000000	STAT3	000040	CRANGE	0003	000070	CSTDEV
0003	000044	XMODE	000014	XMAX	0003	000040	XRED	000040	CRANGE	0003	000070	CSTDEV
0003	000044	XMODE	000020	XRANGE	0003	000040	XRED	000040	CRANGE	0003	000070	CSTDEV

00100	1*	C	COMPILER (DATA=SHORT)
00101	2*	C	
00101	3*	C	
00103	4*		SUBROUTINE PRSTAT
	5*		

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PARAMETER MCH=4
PARAMETER NPRI=8*MCH , NPR2=4*MCH
DIMENSION A1(MCH), B1(MCH), P1(MCH), S1(MCH), NCVET(MCH)
DIMENSION A2(MCH), B2(MCH), P2(MCH), S2(MCH)
DIMENSION AMIN(MCH), XMAX(MCH), XRMGE(MCH)
DIMENSION XRMDEV(MCH), XMD(MCH), XMODE(MCH), CXMIN(MCH), CSTDEV(MCH)
DIMENSION CXMAX(MCH), CMEAN(MCH), CMNDEV(MCH), CMODE(MCH)
DIMENSION CRANGE(MCH)

COMMON /STX6/ A2, B2, XMIN, XMAX, XRMGE, P2, S2, XRMDEV,
1 XMD, XMODE, CXMIN, CXMAX, CRANGE, CMEAN, CSTDEV, CMNDEV,
2 CMODE, CMODE

COMMON /ST101/ A1,B1, P1, S1
COMMON /ALL/ INTYPE, NIMAGE, NCHOUT, NC, NCVET
DIMENSION STHDG(26), W101(12), LINLAB(48)
DIMENSION STAT1(NPRI), STAT2(NPRI), ISTAT1(MCH), ISTAT2(MCH)
DIMENSION STAT3(NPR2)

EQUIVALENCE ( STAT3(1), A1(1) ), ( STAT2(1), CXMIN(1) )
EQUIVALENCE ( STAT1(1), XMIN(1) )

DATA STHDG/(/// T58,'STATISTICS'/ T26,'// 158,
1-----'// 158,
2 '5 X 6 AREA' / T57,'// 158, ' // ) /
DATA W101/(/// T53,'10 X 11 SEARCH AREA' / T53,'// 158,
3-----'// ) /

DATA RAND/'RAND' // , DASH/'-----' /
DATA H3X0/'5 X 6' //, NSUM/'SUM' //, HAREA/'AREA' //, HEL/'ELEV'//
DATA HDAT/'DATA' //, HCOR/'CORR' //
DATA (LINLAB(1),I=1,4)/'MIN' //
DATA (LINLAB(1),I=5,8)/'MAX' //
DATA (LINLAB(1),I=9,12) /'RANGE' //
DATA (LINLAB(1),I=13,16) /'HEAR' P2= //
DATA (LINLAB(1),I=17,20) /'STU DEVIATION' S2= //

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00154 64. DATA (LINLAB(I),I=21,24)/MEAN DEVIATION 0 /
00156 65. DATA (LINLAB(I),I=25,28)/MEDIAN 0 /
00160 66. DATA (LINLAB(I),I=29,32)/MODE 0 /
00162 67. DATA (LINLAB(I),I=33,36)/GAIN A1=0 /
00164 71. DATA (LINLAB(I),I=37,40)/SECOND BIAS B1=0 /
00166 72. DATA (LINLAB(I),I=41,44)/ARITHMETIC MEAN P1=0 /
00170 73. DATA (LINLAB(I),I=45,48)/STANDARD DEVIATION S1=0 /
00172 74.
00174 75.
00176 76.
00178 77.
00180 78.
00182 79.
00184 80.
00186 81.
00188 82.
00190 83.
00192 84.
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00324 118.
00328 119.
00332 120.
00336 121.
00340 122.

C NCHAN = NCHAN/4 + 1
C NWRITE = NCHAN/4
IF (NCHAN.GE.4.AND.100(NCHAN,1).EQ.0) NWRITE = NCHAN/4
DO 60 I=1,NWRITE,1
  NBEG = NCHAN + 1
  NLAST = NBEG + 3
  IF (I.EQ.NWRITE) NLAST = NCHAN
  NDIF = NLAST - NBEG
  WRITE(6,5THDG) (BAND,VCVEC(K),K=NBEG,NLAST,1)
  WRITE(6,1000) (BAND,DASH,K=NBEG,NLAST,1)
  1000 FORMAT(/ 30X, 4(A5, 12, 12X) )
  WRITE(6,2000) (DASH,DASH,K=NBEG,NLAST,1)
  2000 FORMAT( 26X 4(2A6,8X) )
  WRITE(6,3000) (H5X6,HSUN,K=NBEG,NLAST,1)
  3000 FORMAT( 25X 4(A5, 5X, A3, 7X) )
  WRITE(6,4000) (HAREA,HEL,K=NBEG,NLAST,1)
  4000 FORMAT( 26X 4( A4, 4X, A4, 8X ) )
  WRITE(6,5000) (HDATA,HCOR,K=NBEG,NLAST,1)
  5000 FORMAT( 24X 4( A4, 4X, A4, 8X ) )
  WRITE(6,6000) (DASH,DASH,K=NBEG,NLAST,1)
  6000 FORMAT( 25X 4( A6, 3A, A6, 5X ) )
  STAT1 = 5X5 AREA STATISTICS: AMIN,AMAX,XRANGE,P2,S2,XMODEV,
  AMED,XMODE, FOR ALL OUTPUT
  CHANNELS

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00272      STAT2 = CORRECTED STATISTICS FOR 5X6 AREA :
00273      CXMIN,CXMAX,CRANGE,CMEAN,CSTDEV,CMNDEV,CMED,CMODE,
00274      FOR ALL OUTPUT CHANNELS
00275
00276      STAT3 = 10 X 11 AREA GAIN, BIAS, MEAN, STD DEV (A1,B1,P1,S1)
00277      FOR ALL OUTPUT CHANNELS
00278
00279      DO 10 J=1,3
00280      NLABN = IABS(J*4)
00281      NLAB1 = IABS(NLABN-3)
00282      J1 = ( J-1 ) * MCH + NBEG
00283      J2 = J1 + 4*DIFF
00284      JJJ = J1
00285      DO 5 L=NBEG,NLAST,1
00286      ISTAT1(L) = STAT1(JJJ)
00287      ISTAT2(L) = STAT2(JJJ)
00288      JJJ = JJJ + 1
00289
00290      5 IF ( INTYPE .EQ. 3 ) GO TO 6
00291
00292      WRITE(6,7000) ( LINLAB(K),K=NLAB1,NLABN )
00293
00294      I ( ISTAT1(K), ISTAT2(K), K=NBEG,NLAST,1 )
00295
00296      7000 FORMAT( / 3X, 3A6, A2, 3X, 4( 14, 4X, 14, 8X ) )
00297
00298      GO TO 10
00299
00300      6 WRITE(6,7001) ( LINLAB(K), K=NLAB1,NLABN )
00301
00302      I ( ISTAT1(K),K=NBEG,NLAST,1 )
00303
00304      7001 FORMAT( / 3X, 3A6, A2, 3X, 4( 14, 16X ) )
00305
00306      10 CONTINUE
00307
00308      DO 20 J=4,6
00309      NLABN = IABS(J*4)
00310      NLAB1 = IABS( NLABN - 3 )
00311      J1 = ( J-1 ) * MCH + NBEG
00312      J2 = J1 + 4*DIFF
00313
00314      IF( INTYPE .EQ. 3 ) GO TO 15
00315
00316      WRITE(6,8000) ( LINLAB(K), K=NLAB1,NLABN )
00317
00318      I ( ISTAT1(K), STAT2(K), K= J1,J2 )
00319
00320      8000 FORMAT( / 3X, 3A6, A2, 3X, 4( F6.1, 2X, F6.1, 6X ) )
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OF POOR QUALITY

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00373      GO TO 20
00374      C 15 WRITE(6,80034) ( LINLAB(K), K=NLABI,NLABN )
00375      C
00376      C 1 ( STATIK ), K=J1,J2 )
00377      C 8004 FORMAT( / 3X, 3A6,A2, 5X, 4(F6.1,14X) )
00378      C 20 CONTINUE
00379      C
00380      DO 40 J=7,8
00381      NLABN = IABS(J+4)
00382      NLABI = IABS(NLABN - 3 )
00383      J1 = ( J - 1 ) * NCH + NBEG
00384      J2 = J1 + NCH
00385      JJJ = J1
00386      DO 30 L=NBEG,NLAST,1
00387      ISTAT1(L) = STAT1(JJJ)
00388      ISTAT2(L) = STAT2(JJJ)
00389      JJJ = JJJ + 1
00390      C 30 JJJ = JJJ + 1
00391      C
00392      IF ( INTYPE.EQ. 3 ) GO TO 35
00393      C
00394      WRITE(6,8000) ( LINLAB(K), K=NLABI,NLABN )
00395      C 1 ( ISTAT1(K), ISTAT2(K), K=NBEG,NLAST,1 )
00396      C
00397      GO TO 40
00398      C 35 WRITE(6,8001) ( LINLAB(K), K=NLABI,NLABN )
00399      C 1 ( ISTAT1(K), K=NBEG,NLAST,1 )
00400      C
00401      CONTINUE
00402      IF ( INTYPE.EQ. 3 ) GO TO 40
00403      WRITE(6,8001)
00404      WRITE(6,8001) ( BAND, NCEC(K), K=NBEG,NLAST )
00405      C 8001 FORMAT( / 3X, 4( A5, 12, 13X ) )
00406      C
00407      WRITE(6,8002) ( DASH, DASH, K=NBEG,NLAST )
00408      C 8002 FORMAT( / 3X 4( A6, A1, 13X ) )
00409      C
00410      DO 50 J=1,4
00411      NLABN = ( J+4 ) * 4
00412      NLABI = NLABN - 3
00413      J1 = ( J - 1 ) * NCH + NBEG
00414      J2 = J1 + NCH
00415      WRITE(6,8003) ( LINLAB(K), K=NLABI,NLABN )
00416      C 1 ( STATIK ), K=J1,J2 )
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00527 238*      R003 FORMAT(// 3X  3A6.A5, 4X,  4( F6.1, 14X ) )
00527 239*      C
00527 240*      C
00530 241*      5U  CONTINUE
00530 242*      C
00530 243*      C
00530 244*      6D  CONTINUE
00532 245*      C
00532 246*      C
00534 247*      RETURN
00535 248*      END

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END OF COMPILATION:      NO  DIAGNOSTICS.
PSYAL  CODE      SYMBOLIC
PSYAL  CODE      RELOCATABLE

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21 OCT 76 17:11:06      0 01521124      14      248 (DELETED)
                0 01521170      14      64      1 (DELETED)

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00112 DATA DASH/'-----', BAND/'BAND ', IBLANK/' ' /
00113 DATA NGT60/'% > 60 ' /, NGT90/'% > 90 ' /, NGT60C/'% > 60%' /
00114 DATA NGT70C/'% > 70%' /, NGT80C/'% > 80%' /, NGT90C/'% > 90%' /
00115 DATA HUGPCT/'(///// 147.11H5 X 6 AREA / T46, '-----' /
00116 1 // T35, '%PERCENT EXCEEDING SELECTED VALUES' / T35,
00117 2 '-----' /
00118 DATA FTNOTE/'(///// T17,*** = CORRECTED BRIGHTNESS' / T19,
00119 1 '**= BRIGHTNESS X SIN 60/SIN SUN ELEV' / )' /
00120 COMMON /PERCENT/ PCTGT(MCM,6), MINTST(6)
00121 NCHAN = NCHOUT
00122 NWRITE = NCHAN/4 + 1
00123 IF ( NCHAN .GE. 4 .AND. MOD(NCHAN,4) .EQ. 0) NWRITE = NCHAN/4
00124 DO 90 I=1,NWRITE+1
00125 NBEG = NLAST + 1
00126 NLAST = NBEG + 3
00127 IF ( I .EQ. NWRITE) NLAST = NCHAN
00128 WRITE(6, HUGPCT )
00129 WRITE(6,1000) ( BAND, HVEC(K), K=NBEG,NLAST )
00130 FORMAT(/// 30X, 4(A5, 12, 13X) )
00131 WRITE(6,2000) ( DASH, K=NBEG,NLAST )
00132 FORMAT( 30X 4( A6, A1, 13A) )
00133 NPR = 6
00134 IF( INTYPE .EQ. 3) NPR = 2
00135 DO 80 J=1,NPR
00136 GO TO ( 10, 20, 30, 40, 50, 60 ) , J
00137 10 LINLAB(1) = NGT60(1)
00138 LINLAB(2) = NGT60(2)
00139 LINLAB(3) = IBLANK
00140 GO TO 75
00141 20 LINLAB(1) = NGT90(1)
00142 LINLAB(2) = NGT90(2)
00143 LINLAB(3) = IBLANK
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00211 75. GO TO 75
00212 76. C 30 LINLAB(1) = NGT60C(1)
00213 77. GO TO 76
00214 78. C 40 LINLAB(1) = NGT70C(1)
00215 79. GO TO 79
00216 80. C 50 LINLAB(1) = NGT80C(1)
00217 81. GO TO 80
00218 82. C 60 LINLAB(1) = NGT90C(1)
00219 83. C 70 MIN = MINIST(J)
00220 84. C ENCODE(6, 2500, LINLAB(2) ) MIN
00221 85. C 2500 FORMAT( 3H, ( , 13 )
00222 86. C LINLAB(3) = 6H)
00223 87. C 75 WRITE(6, 3000 ) LINLAB, ( PCTGT(L,J), L=NREG,NLAST )
00224 88. C 3000 FORMAT( // T11, 3A6, 2X, F6.1, 3( 14X, F6.1 ) )
00225 89. C 80 CONTINUE
00226 90. IF ( INTYPE.EQ. 3) GO TO 90
00227 91. WRITE(6,FTNOTE )
00228 92. C 90 CONTINUE
00229 93. C
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END OF COMPILATION: NO DIAGNOSTICS.
 PPCT SYMBOLIC
 PPCT RELOCATABLE

21 OCT 76 17:11:07 0 01527770 14 111 (DELETED)
 30 01528012 30 14 30
 0 01528056 14

26 OCT 76

18:50:30.404

FOR: HISPFC,HISPFC
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A -(EXEC8 LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 26 OCT 76 AT 18:50:30

SUBROUTINE PFCNIS ENTRY POINT 000333

STORAGE USED: CODE(1) 000350; DATA(0) 000076; BLANK COMMON(2) 000000

COMMON BLOCKS:

0003 ALL 000010
0004 PFCN 000200
0005 FREQHD 000064

EXTERNAL REFERENCES (BLOCK, NAME)

0006 WNCODS
0007 NI02S
0010 NMODS
0011 NI01S
0012 NERR3S

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0000 000024 1000F 0001 000057 1416 0001 000144 1676
0001 000270 20L 0001 000026 2000F 0001 000163 2046
0001 000207 224G 0001 000216 2336 0001 000301 2576
0003 R 000000 DASH 0004 R 000000 HPFC
0003 000000 INTYPE 0000 000015 J 0000 000014 K
0003 000020 L2 0000 000012 NSEG 0003 000003 NC
0003 000002 NCHOUT 0003 000004 NCVEC 0003 000001 NIMAGE
0000 000013 NFR 0003 000022 NV 0000 000003 NVFMT
0000 R 000023 PCTFMT 0000 000004 PCTFMT

0001 000150 173G 0001 000156 177G
0001 000171 212G 0001 000200 220G
0000 000001 BAND 0000 000302 BLANK
0000 000011 I 0000 000046 IMJPS
0000 000010 LAST 0000 000017 LI
0000 000021 LCH 0000 000005 MCHAN
0000 000026 NL 0000 000006 NLYL
0000 000007 NWRITE 0000 000004 OUTREC

COMPILER (DATA=SHORT)

00101 1*
00101 2*
00101 3*
00103 4*
00103 5*
00103 6*
00105 7*
00105 8*
00106 9*
00106 10*
00107 11*
00107 12*
00110 13*
00110 14*
00111 15*
00111 16*
00112 17*

SUBROUTINE PFCNIS

PARAMETER MCH=4

PARAMETER HPFC = 16

PARAMETER MAXPL1 = 257

DIMENSION NCVEC(MCH)

COMMON /ALL/ INTYPE, NIMAGE, NCHOUT, NC, NCVEC

DATA DASH/'-----'/, BAND/'BAND '/, BLANK/'/'

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```

00112 DATA NUFMT/('16')/ , PCTFMT/('F0.1')/
00113
00114 COMMON /PFCH/ HPFC(MCH,NPFC,2)
00115
00116 COMMON /FREQHND/ HDFREQ(44) , OUTREC(18)
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DATA NUFMT/('16')/ , PCTFMT/('F0.1')/
COMMON /PFCH/ HPFC(MCH,NPFC,2)
COMMON /FREQHND/ HDFREQ(44) , OUTREC(18)

NCHAN = NCHOUT
NLVL = NPFC
NWRITE = NCHAN/4 + 1
IF ( NCHAN .GE. 4 .AND. MOD(NCHAN,4) .EQ. 0 ) NWRITE = NCHAN/4
HDFREQ(3) = 6H 'P'
HDFREQ(4) = 6HFC
HDFREQ(5) = 6H ' '
HDFREQ(27) = 6HSH PFC
HDFREQ(23) = 6H /2X
HDFREQ(22) = 6HSHLEVE
HDFREQ(30) = 6H /9X
LAST = 0
DO 40 I=1,NWRITE,1
NBEG = LAST + 1
LAST = NBEG + 3
IF ( I .EQ. NWRITE ) LAST = NCHAN
NPR = IABS( LAST - NBEG + 1 )
ENCODE (5,1000, HDFREQ(19) ) NPR
ENCODE (5,1000, HDFREQ(23) ) NPR
ENCODE (6,1000, HDFREQ(31) ) NPR
ENCODE (6,1000, HDFREQ(39) ) NPR
1000 FORMAT( 3X , I1 , 2X )
WRITE(6,HDFREQ) ( DASH, K=1,3) , ( DASH, K=1,5) ,
1 ( BAND, NVECIK), K=NBEG, LAST, 1 ) ,
2 ( DASH, DASH, DASH, K=NBEG, LAST, 1 ) ,
3 ( DASH, DASH, K=NBEG, LAST, 1 )
DO 30 J=1,NLVL,1
NL = J
DO 10 K=1,8
OUTREC(K) = BLANK
10
L1 = 0
L2 = 0

```



```

00231 760
00232 770
00233 780
00234 790
00235 800
00236 810
00237 820
00238 830
00239 840
00240 850
00241 860
00242 870
00243 880
00244 890
00245 900
00246 910
00247 920
00248 930
00249 940
00250 950
00251 960
00252 970
00253 980
00254 990
00255
00256
00257
00258
00259
00260
00261
00262
00263
00264
00265
00266
00267
00268
00269
00270
00271

```

C DO 20 K=NBEG, LAST, 1
NCH = K
L1 = L2 + 1
L2 = L1 + 1
NV = HPFC(NCH, NL, 1)
IF(NV.EQ.0) GO TO 20
PCT = HPFC(NCH, NL, 2)
ENCODE(6, NVFMT, OUTREC(L1), NV
ENCODE(6, PCTFMT, OUTREC(L2), PCT
CONTINUE
20
C WRITE(6, 2300) NL, OUTREC
C 2300 FORMAT(/ 2X, 14, 8X, 4(A6, 3X, A6, 6X))
C 30 CONTINUE
C 40 CONTINUE
C RETURN
C END

END OF COMPILATION: NO DIAGNOSTICS.
HISLPC SYMBOLIC
HISLPC CODE RELOCATABLE

21 OCT 76 17:11:09 0 01526722 14 99 (DELETED)
21 OCT 76 17:11:09 0 01531474 14 99 (DELETED)
21 OCT 76 17:11:09 0 01531540 14 27

FOR: 250P2 GABPR
UNIVAC 1100 PORTRA V EXEC II LEVEL 25A (EXEC 8 LEVEL E12010710A)
THIS COMPI LATION HAS DONE ON 26 OCT 76 AT 18:50:31

26 OCT 76

18:50:31.869

SUBROUTINE PRGAS ENTRY POINT 000674

STORAGE USED: CODE(1) 000705; DATA(0) 001034; BLANK COMMON(2) 000000

COMMON BLOCKS:

0003 ALL 000012
0004 S1011 000020
0005 S15X6 000040
0006 SYCOMP 000374
0007 PGLABL 000075
0010 HDATA 000026

EXTERNAL REFERENCES (BLOCK, NAME)

0011 NYC0DS
0012 NYC0S
0013 NYC0S
0014 NYC0S
0015 NYC0S

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001	000050	1005F	000723	1001F	0000	000730	1002F
0002	000745	1005F	000754	1005F	0001	000761	1005F
0003	000545	1005F	000112	2219	0001	000136	231G
0004	000534	1005F	000600	5149	0001	000008	AA1
0005	000160	A15	000170	A16	0005	000200	A12
0006	000230	A15	000240	A16	0006	000250	A17
0007	000300	A24	000272	A20	0006	000274	A21
0008	000334	A24	000344	A25	0006	000354	A26
0009	000362	A29	000400	A3	0006	000360	A4
0010	000130	A7	000140	A8	0006	000150	A9
0011	000004	B14	000164	B15	0006	000174	B11
0012	000224	B14	000234	B15	0006	000244	B16
0013	000271	B19	000284	B24	0006	000293	B20
0014	000320	B33	000340	B24	0006	000350	B25
0015	000361	B28	000363	B29	0006	000374	B8
0016	000124	B6SH	000384	B7	0006	000394	B3
0017	000320	ICB	000411	ELFLG	0006	000421	HDGAR
0018	000370	ICB	000413	IDENFS	0006	000421	IEW
0019	000012	ISITE	000413	ITRUNC	0006	000421	IXMAX
0020	000711	K	000421	L	0006	000421	LAST
0021	000075	LINE1	000421	LINE2	0006	000421	LINE3
0022	000275	LINE6	000421	LINE7	0006	000421	LINE8
0023	000015	K15HR	000421	MISRI	0006	000421	HISSEC
0024	000003	NCURUC	000421	NCHAN	0006	000421	NCHOUT
0025	000017	PAGEFLG	000421	NCHOUT	0006	000421	NUMCH
0026	000017	PAGEFLG	000421	PAGHD2	0006	000421	PAGHD2
0027	000017	PAGEFLG	000421	P2PT12	0006	000421	P2PT12
0028	000017	PAGEFLG	000421	P2PT12	0006	000421	P2PT12

B-39


```

00127 3 **A9=, F6.1, T117, **A10=, F6.1) * /
00127 C
00127 C DATA LINE4/(1H0 T12, **BIAS=, T18, **B1=, F6.1, T29, **B2=,
00131 C 1 F6.1, T40, **R3=, F6.1, T51, **B4=, F6.1, T62, **B5=, F6.1,
00131 C 2 T73, **B6=, F6.1, T84, **B7=, F6.1, T95, **B8=, F6.1, T106,
00131 C 3 **B9=, F6.1, T117, **B10=, F6.1) * /
00131 C
00131 C DATA LINE5/(1H0 T12, **MEAN=, T18, **P1=, F6.1, T29, **P2=,
00133 C 1 F6.1, T40, **P3=, F6.1, T51, **P4=, F6.1, T62, **P5=, F6.1
00133 C 2) * /
00133 C
00133 C DATA LINE6/(1H0 T10, **STD DEV S1=, F6.1, T29, **S2=, F6.1,
00135 C 1 T40, **S3=, F6.1, T51, **S4=, F6.1, T62, **S5=, F6.1) * /
00135 C
00135 C DIMENSION P2IL1(32), P2IL2(28)
00137 C
00137 C DATA P2IL1/(/// 1X, **BAND=, T12, **GAIN=, T20, **A11=, F6.1,
00140 C 1 T32, **A12=, F6.1, T44, **A13=, F6.1, T56, **A14=, F6.1, T68,
00140 C 2 **A15=, F6.1, T80, **A16=, F6.1, T92, **A17=, F6.1, T104,
00140 C 3 **A18=, F6.1 / 2X, 2) * /
00140 C
00140 C DATA P2IL2/(1H+ T12, **BIAS=, T20, **B11=, F6.1, T32, **B12=,
00142 C 1 F6.1, T44, **B13=, F6.1, T56, **B14=, F6.1, T68, **B15=, F6.1,
00142 C 2 T80, **B16=, F6.1, T92, **B17=, F6.1, T104, **B18=, F6.1) * /
00142 C
00142 C DIMENSION P4L1(25), P4L23(24)
00144 C
00144 C DATA P4L1/(/// 1X, **BAND=, 1X, T2, T20, **MIN=, 14, T30,
00145 C 1 **MAX=, 14, T50, **CA=, 14, T67, **CB=, 14, T84, **CA=, 14,
00145 C 2 T93, **CB=, 14 // T64, **P1=, T90, **P2=) * /
00145 C
00145 C DATA P4L23/( / 15, **GAIN=, T23, **A23=, F6.1, T60, **A24=,
00147 C 1 F6.1, T86, **A25=, F6.1 / 1H T5, **BIAS=, T23, **B23=, F6.1,
00147 C 2 T60, **B24=, F6.1, T35, **S25=, F6.1) * /
00147 C
00147 C DIMENSION P3L1(27), P3P1(23), P2P1(252), P2P13(30)
00151 C
00151 C DATA P3L1/(/// T29, **TRUNCATED S P2 +/- 3 S2=, T76, **TRUNCATE
00152

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00152 ID = P2(NEW) +/- 3 S2(NEW) / T27,-----
00152 2 T75,----- /' /
00152
00152 DATA P3PT11/(/ T2,--BAND, 14 // T2,--GAIN, BIAS, T28,
00152 1 --A21, F6.1, T43,--, T43,--B21, F6.1, T79,--A22, F6.1,
00154 2 T91,--, T94,--B22, F6.1 / 1' /
00154
00154 DATA P2PT2/(///T31,--MAX(HI)/MIN(LU), T71,--P1/S1, T95,
00156 1 --P2/S2 / T31,-----, T68,-----, T92,
00156 2 ----- // T7,--BANDS, T21,--GAIN, T35,--A19,
00156 3 F6.1, T69,--A26, F6.1, T93,--A28, F6.1 // T5,--1, 2, 2(4),
00156 4 , T21,--BIAS, T35,--B19, F6.1, T69,--B26, F6.1, T93,
00156 5 --B29, F6.1 / 1' /
00156
00156 DATA P2PT3/(/// T7,--BANDS, T21,--GAIN, T35,--A20, F6.1,
00156 1 T69,--A27, F6.1, T93,--A29, F6.1 // T5,--2, 3, 2(4), T21,
00160 2 --BIAS, T35,--B20, F6.1, T69,--B27, F6.1, T93,--B29,
00160 3 F6.1 / 1' /
00160
00160 COMMON /ALL/ INTYPE, VMAGE, NCHOUT, NC, NCVEC, ALBI, ELFLG
00160 COMMON /STIG11/ A1(MCH), B1(MCH), P1(MCH), S1(MCH)
00162
00162 COMMON /STSA6/ A2(MCH), P2(MCH), XMIN(MCH), XMAX(MCH),
00162 1 X RANGE(MCH), P2(MCH), S2(MCH), XMNDEV(MCH)
00162
00162 COMMON /STIG2/ ITRUNC(4,MCH,2), A3(MCH), B3(MCH), P3(MCH),
00162 1 S3(MCH), A4(MCH), B4(MCH), P4(MCH), S4(MCH),
00162 2 A5(MCH), S5(MCH), P5(MCH), S5(MCH), A6(MCH),
00162 3 B6(MCH), A7(MCH), B7(MCH), A8(MCH), S8(MCH)
00162 4 A9(MCH), S9(MCH), A10(MCH), B10(MCH), A11(MCH), B11(MCH),
00162 5 A12(MCH), B12(MCH), A13(MCH), B13(MCH), A14(MCH), B14(MCH),
00162 165
```

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00165 6 A15(MCH), B15(MCH), A16(MCH), B16(MCH), A17(MCH), B17(MCH),
00166 7 A18(MCH), B18(MCH), A19, B19, A20, B20, A21(MCH), B21(MCH), A22(MCH),
00167 R B22(MCH), A23(MCH), B23(MCH), P23(MCH), S23(MCH), A24(MCH),
00168 9 B24(MCH), A25(MCH), B25(MCH), A26, B26, A27, B27, A28, B28,
00169 • A29, B29, ICA(MCH), IC9(MCH)
00170
00171 COMMON /POLASL/ PAGHD1(43), PAGHD2(15), NFPROC, TLABEL, PSUNEL
00172
00173 COMMON /HDATA/ SUNEL, SUNAZ, RO(MCH), AAL(MCH), ISITE, IDERTS, MISDAY,
00174 1 HISHR, MISMIN, MISSEC, NOKSOU, IEM, LATDEG, LATHIN,
00175 2 LONDEG, LONMIN
00176
00177 IF( INIYPE .NE. J ) GO TO 1
00178 ENCODE( 24, 1001, LINE3(3) )
00179
00180 1001 FORMAT( 24HIN', A6, T2 )
00181
00182 ENCODE ( 24, 1002, LINE4(3) )
00183
00184 1002 FORMAT( 24HAS', A6, T2 )
00185
00186 ENCODE ( 24, 1003, LINE5(3) )
00187
00188 1003 FORMAT( 24HAN', A6, T2 )
00189
00190 ENCODE ( 12, 1004, LINE6(4) )
00191
00192 1004 FORMAT( 12H', A6, )
00193
00194 ENCODE ( 36, 1005, LINE3(29) )
00195
00196 1005 FORMAT( 36H 2AA )
00197
00198 ENCODE ( 36, 1005, LINE4(29) )
00199
00200
00201
00202
00203
00204
00205
00206
00207
00208
00209
00210
00211
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00225

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224* C      WRITE(6, HDGAB ) ( DASH= K=1,15 )
225* C      WRITE(6, CHSEP )
226* C
227* C      DO 10 J=HBEG, LAST, 1
228* C
229* C      NCH = J
230* C      NURCH = NCH
231* C      IXMIN = AMIN(NCH)
232* C
233* C      WRITE(6, LINE1 ) NURCH , IXMIN, ITRUNC(1,NCH,1), ITRUNC(2,NCH,1),
234* C      ITRUNC(3,NCH,1)
235* C
236* C      IXMAX = VMAX(NCH)
237* C
238* C      WRITE(6, LINE2 ) IXMAX, ITRUNC(1,NCH,2), ITRUNC(2,NCH,2),
239* C
240* C      ITRUNC(3,NCH,2)
241* C
242* C      WRITE(6, LINE3 ) A1(NCH), A2(NCH), A3(NCH), A4(NCH), A5(NCH) ,
243* C      A6(NCH), A7(NCH), A8(NCH)
244* C
245* C      WRITE(6, LINE4 ) B1(NCH), B2(NCH), B3(NCH), B4(NCH), B5(NCH) ,
246* C      B6(NCH), B7(NCH), B8(NCH)
247* C
248* C      WRITE(6, LINE5 ) P1(NCH), P2(NCH), P3(NCH), P4(NCH), P5(NCH)
249* C      S1(NCH), S2(NCH), S3(NCH), S4(NCH), S5(NCH)
250* C
251* C      WRITE(6, CHSEP )
252* C
253* C      10 CONTINUE
254* C
255* C      ASSIGN 12 TO PAGFLG
256* C
257* C      11 IF ( ITYPE .EQ. 1 ) WRITE(6, PAGHD1) TLABEL, LATDEG, LATMIN,
258* C      I WORSOU, NFRROC, ISITE, IDERTS, MISDAY, MISHR, MISMIN, MISSEC,
259* C      Z LOUDEG, LOHMIN, IEG, PSUNEL, SUNAZ
260* C
261* C      IF ( ITYPE .EQ. 3 ) WRITE(6, PAGHD2) NFRROC, TLABEL, NIMASE, PSUNEL
262* C
263* C      GO TO PAGFLG
264* C
265* C      12 N = J
266* C
267* C
268* C
269* C
270* C
271* C
272* C
273* C
274* C
275* C
276* C
277* C
278* C
279* C
280* C
281* C

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00371 282*
00372 283*
00373 284*
00374 285*
00375 286*
00376 287*
00377 288*
00378 289*
00379 290*
00380 291*
00381 292*
00382 293*
00383 294*
00384 295*
00385 296*
00386 297*
00387 298*
00388 299*
00389 300*
00390 301*
00391 302*
00392 303*
00393 304*
00394 305*
00395 306*
00396 307*
00397 308*
00398 309*
00399 310*
00400 311*
00401 312*
00402 313*
00403 314*
00404 315*
00405 316*
00406 317*
00407 318*
00408 319*
00409 320*
00410 321*
00411 322*
00412 323*
00413 324*
00414 325*
00415 326*
00416 327*
00417 328*
00418 329*
00419 330*
00420 331*
00421 332*
00422 333*
00423 334*
00424 335*
00425 336*
00426 337*
00427 338*
00428 339*

C      DO 13 N=NBEG, LAST, 1
C      N=N+1
C      NUMCH = NCVEC(K)
C      WRITE(6, P21L1) A11(N), A12(N), A13(N), A14(N), A15(N), A16(N),
C      1      A17(N), A18(N), NUMCH
C      WRITE(6, P21L2) B11(N), B12(N), B13(N), B14(N), B15(N), B16(N),
C      1      B17(N), B18(N)
C      WRITE(6, CHSEP)
C      13 CONTINUE
C      WRITE(6, 1006)
C      WRITE(6, P2PT2) A19, A26, A28, B19, B26, B28
C      WRITE(6, CHSEP)
C      WRITE(6, P2PT3) A20, A27, A29, B20, B27, B29
C      WRITE(6, CHSEP)
C      ASSIGN 14 TO PAGFLG
C      GO TO 11
C      14 WRITE(6, 1006)
C      1006 FORMAT(//)
C      WRITE(6, P3L1)
C      N=N+1
C      DO 15 N=NBEG, LAST, 1
C      N=N+1
C      NUMCH = NCVEC(L)
C      WRITE(6, P3PT1) NUMCH, A21(N), B21(N), A22(N), B22(N)
C      WRITE(6, CHSEP)
C      15 CONTINUE
C      ASSIGN 15 TO PAGFLG
C      GO TO 11
C      16 N=N+1

```


0000	015466	LINEC	0000	015462	LSKIP	0000	015444	MAXREC	0000	015436	NB
0000	016251	MBITS	0000	016247	NC	0000	016254	NCAK	0000	016244	NCPR
0000	015443	MCS	0000	016245	NPRC	0000	016240	NCRD	0000	016240	NS
0000	015501	NSAMP	0000	015221	PAGSKIP	0000	015220	READY	0000	015455	REC
0000	015470	NSAMP	0000	015467	SAMSKY	0000	015503	SCAN	0000	015506	SKPB1T
0000	016256	SMSTR	0000	016255	SVD						

```

1. 00100
2. 00101
3. 00101
4. 00101
5. 00101
6. 00101
7. 00101
8. 00101
9. 00101
10. 00101
11. 00101
12. 00101
13. 00101
14. 00101
15. 00101
16. 00101
17. 00101
18. 00101
19. 00101
20. 00101
21. 00101
22. 00101
23. 00101
24. 00101
25. 00101
26. 00101
27. 00101
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29. 00101
30. 00101
31. 00101
32. 00101
33. 00101
34. 00101
35. 00101
36. 00101
37. 00101
38. 00101
39. 00101
40. 00101
41. 00101
42. 00101
43. 00101
44. 00101
45. 00101
46. 00101
47. 00101
48. 00101

C. SUBROUTINE TAPERD
C.
C.
C. TAPERD READS THE MULTISPECTRAL SCANNER DATA TAPE, UNPACKS THE
C. REQUESTED DATA AND RETURNS IT UNPACKED TO THE CALLING ROUTINE.
C. THERE ARE THREE ENTRY POINTS TO THE SUBROUTINE. TAPHDR, FLDIRT
C. AND LINERD
C.
C. TAPHDR MUST BE CALLED ONCE TO READ THE HEADER RECORD AND UNPACK
C. NECESSARY DATA FROM THE RECORD
C.
C. CALL TAPHDR(DATAPE,FILENO)
C. DATAPE-INPUT UNIT NUMBER FOR DATA TAPE
C. FILENO - NO. OF E-O-F'S ON DATA TAPE USER WISHES TO READ OVER
C. IN ORDER TO POSITION TAPE TO DESIRED FILE
C.
C. FLDIRT MUST BE CALLED ONCE FOR EACH FIELD, THE TAPE IS POSITIONED
C. TO THE CORRECT RECORD AND PARAMETERS ARE INITIALIZED FOR THE FIELD
C.
C. CALL FLDIRT(BLOCK,FETVEC,NOFEAT)
C. BLOCK(1)=LINE START
C. BLOCK(2)=LINE END
C. BLOCK(3)=LINE INCREMENT
C. BLOCK(4)=SAMPLE START
C. BLOCK(5)=SAMPLE END
C. BLOCK(6)=SAMPLE INCREMENT
C. FETVEC- (INPUT) VECTOR CONTAINING FEATURES REQUESTED
C. NOFEAT (INPUT) NO. OF FEATURES IN FETVEC
C.
C. LINERD MUST BE CALLED ONCE FOR EACH SCAN LINE IN THE FIELD
C.
C. CALL LINERD(IDATA,ENDTAP)
C. IDATA-(OUTPUT) ARRAY CONTAINING UNPACKED DATA
C. ENDTAP - LOGICAL INDICATING WHETHER OR NOT AN F-O-F HAS BEEN
C. REACHED WHILE TRYING TO READ A GIVEN SCAN LINE NO.
C. IF AN E-O-F IS FOUND ENDTAP = -1, OTHERWISE, ENDTAP
C. = 0.
C.
C. DIMENSION IOL(20),IRUF(6000)
C. IMPLICIT INTEGER(A-Z)
C. LOGICAL READY
C. READY IS A LOGICAL INDICATOR TO TEST WHETHER THE TAPE HAS BEEN
C. POSITIONED AND PARAMETERS SET FOR A FIELD
C. DATA READY=.FALSE./
C.

```

```

490 DATA PAGSKIP/((IHL) * /
500
510
520 DIMENSION FRM(2,2)
530 DATA FRM/UNIVERSAL
540 DIMENSION ISTAT(10),IUNIT(30),JREC(30),LBUF(30)
550
560 * * * LARSYS 2 */
570 THE ARRAYS BIT,NB,AND HNRD ARE PRECALCULATED WORD AND BIT
580 POSITIONS OF INFORMATION IN THE HEADER RECORD OF THE UNIVERSAL
590 FORMAT WHICH MUST BE EXTRACTED.
600
610 KPRUS - NO. OF RECORDS PER DATA SET
620 KPCR - NO. OF CHANNELS PER RECORD ON RECORDS PAST ANCILLARY REC
630 KPRC - NO. OF PHYSICAL RECORDS PER CHANNEL
640 ANCLNG - ANCILLARY LENGTH IN BYTES
650 NC - NO. OF CHANNELS
660 NS - NO. OF SAMPLES PER CHANNEL PER SCAN
670 NBIT - NO. OF BITS PER PIXEL
680 DOI - DATA ORDER INDICATOR
690 NDSPK - NO. OF DATA SETS PER RECORD
700 NCAF - NO. OF CHANNELS OF VIDEO DATA ON SAME RECORD
710 WITH ANCILLARY DATA
720 SVD - START OF VIDEO DATA. (BYTE POSITION WITHIN DATA FOR
730 "A" GIVEN CHANNEL)
740
750 DIMENSION BIT(12),NB(12),HNRD(12)
760 DATA HNRD/23,23,23,24,20,397,21,24,395,397,21,24/
770 DATA BIT/32,16,24,4,28,32,0,20,32,16,8,28/
780 DATANB/8,8,16,8,16,8,8,16,16,16,16,16/
790 EQUIVALENCE ((ID(1),NRPDS ),(ID(2),NCPK ),
800 ((ID(3),NPRC ),(ID(4),ANCLNG),
810 ((ID(5),NC ),(ID(6),NS ),
820 ((ID(7),NBIT ),(ID(8),DOI),
830 ((ID(9),NDSPK),((ID(10),NCAF ),
840 ((ID(11),SVD)
850 EQUIVALENCE ((ID(12),SHSTR)
860
870 ENTRY FOR LEADING HEADER INFORMATION
880
890 ENTRY TAPPR ( DATAPE, FILENO, FMT )
900
910 INFORMATION IN EBCDIC OR IBM FLOATING POINT IS NOT UNPACKED
920 FROM THE HEADER RECORD AT THIS TIME.
930
940 WRITE(6,PAGSKIP)
950
960 IUNIT=DATAPE
970 KPRUS=KPCR
980
990 CALL NTRM(IUNIT,10,22)
1000 IF (FILENO.EQ.0) CALL NTRM(IUNIT,5,FILENO)
1010 CALL NTRM(IUNIT,2,NDSPK,IUNIT,22)
1020 IF (ISTAT.EQ.176) FORMAT = 2
1030 IF (ISTAT.EQ.680) FORMAT = 1
1040 IF (FMT.EQ.3) FORMAT = 3
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OF POOR QUALITY

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UNPACK NECESSARY INFORMATION FROM HEADER RECORD-UNIVERSAL FORMAT

B-50

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00252 CONTINUE
00253 *WRITE(6,351)FRM(1,1),FRM(2,1),NC,NS
00254 MAXREC=500
00255 IF (NPRC.LE.1) GO TO 80
00256 *WRITE(6,350)
00257 CALL CMEMR
00258 CONTINUE
00259 IF (SVD.LC.O)SVD=1
00260 IF (NDSPR.LE.O)NDSPR=1
00261 IF (NBIT5.EQ.8)GO TO 90
00262 *WRITE(6,359)NBIT5
00263 NBIT5=8
00264 IF (DOI.EQ.O) GO TO 100
00265 *WRITE(6,400)DOI
00266 CALL CMEMR
00267 CONTINUE
00268
00269 ..... UNPACK AND PRINT OUT HEADER INFORMATION PERTINENT
00270 ..... TO LACIE (ERIS) IMAGES
00271 .....
00272 ..... CALL IHEADER ( IBUF )
00273 .....
00274 .....
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00457 281. CALL RUFILL(REC)
00460 292. BUF=1
00461 293. FSCAN=FLINE
00462 294. CONTINUE
00463 295. NSAMP=LINSTR
00464 296. IF(BLOCK(1).LE.(NS/2))GO TO 145
00465 297. WRITE(6,44)JINS
00466 298. CALL CMERR
00471 289. IF(BLOCK(1).LE.(NS/2))GO TO 146
00472 290. WRITE(6,44)JINS
00474 291. CALL CMERR
00477 292. CONTINUE
00500 293. LIND=BLOCK(2)
00501 294. LINC=BLOCK(3)
00502 295. SAMSTR=BLOCK(4)
00503 296. SAMEND=BLOCK(5)
00504 297. SAMINC=BLOCK(6)
00505 298. LINC=NO. OF RECORDS TO SKIP AFTER EACH SCAN LINE
00506 299. LINC=LINC/NDSPR - 1)NRPDS
00507 300. IF(LINC.LT.0)LINC=0
00507 301.
00507 302. ESTABLISH AREAS ON EACH SCAN LINE TO UNPACK
00507 303.
00511 304. ANCLAG + SAMSTR + SVD - 1
00512 305. IF(FURHAT.EQ.1)ANCLAG=ANCLAG+2
00514 306. NBUFS=NRPDS/10
00515 307. IF(MOD(NRPDS,10).NE.0)NBUFS=NBUFS+1
00517 308. FC=1
00520 309. LC=LCAR
00521 310. K=1
00522 311. DO 170 I=1,NOF(LT)
00525 312. DO 170 J=1,NRPDS
00530 313. IF(LREC(I).GT.1)ANCLAG=2 + SAMSTR + SVD - 1
00532 314. IF(LREC(I).GT.1)ANCLAG=2 + SAMSTR + SVD - 1
00533 315. IF(LREC(I).GT.1)ANCLAG=2 + SAMSTR + SVD - 1
00534 316. IF(LREC(I).GT.1)ANCLAG=2 + SAMSTR + SVD - 1
00536 317. WRITE(6,38)FETVEC(I)
00541 318. CALL CMERR
00542 319. LREC(I)=FETVEC(I)-FC)NS + ANCLAG
00543 320. IF(JREC(I).EQ.0)JREC(I)=10
00544 321. LREC(I)=JREC(I) + 1
00546 322. IF(MOD(JREC(I),10).EQ.0)LREC(I)=LREC(I)-1
00547 323. GO TO 180
00551 324. FC=LC+1
00552 325. LC=LC+NCPR
00553 326. CONTINUE
00554 327. K=JREC
00556 328. CONTINUE
00557 329.
00557 330. NSAMP = NO. OF SAMPLES TO UNPACK FOR EACH FEATURE IN FETVEC
00557 331. HSAMP = (SAMEND - SAMSTR) / SAMINC + 1
00557 332. RETURN
00561 333.
00562 334.
00562 335. ENTRY FOR READING AND UNPACKING THE SCAN LINE OF DATA
00562 336.
00562 337. ENTRY LIND(LINDATA,EN,TAP)
00563 338.

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339. DIMENSION IDATA(1)
340. IF (.READY) GO TO 205
341. WRITE (6,410)
342.
343. C. 200 IADR=1
344. 195 IF (IST(1).EQ.-1) GO TO 195
345. IF (FORMAT .EQ.1) SCAN=FLD(20,16,IADR(16))
346. IF (FORMAT .EQ.2) SCAN=FLD(0,16,IADR(1))
347.
348. C IF (FORMAT .EQ.3) SCAN = FSCAN
349. IF (SCAN.EQ.FSCAN) GO TO 196
350. IF (IST(1).LT.0) GO TO 250
351.
352. C CALL SEARCH($250,$235)
353. REC=J
354. BUF=1
355. CALL BUFILL(REC)
356. GO TO 195
357.
358. 196 CONTINUE
359. ADD = (NSCAN-FSCAN)*DSL
360. STOBIT = (36 - NBITS) + 1
361. INCBIT = IABS( (SAMINC - 1) * NBITS )
362.
363. 201 IF (IADR(1).EQ.0) INCBIT = 1
364. CALL NTRN(UNIT,22)
365. CALL BUFILL(REC)
366. BUF=BUF+1
367. GO TO 201
368.
369. 205 CONTINUE
370. J=JREC(IFT)
371. JJ=(J-1)*NAREC + 1
372.
373. C. CHECK STATUS OF THIS RECORD BEFORE UNPACKING
374. C.
375. 210 IF (IST(J).GE.0) GO TO 220
376. IF (IST(J).GE.-1) GO TO 210
377. IF (IST(J).EQ.-2) GO TO 250
378. WRITE (6,290)
379. WRITE (6,310) NSCAN,IST(J)
380. GO TO 250
381.
382. C. UNPACK DATA FOR THIS FEATURE
383. C.
384. 220 IP = ADD + IBYTE(IFT) - 1
385. IBIT = MOD( (IP*NBITS) , 36) + 1
386. BEGRPD = (IP*NBITS) / 36 + JJ
387. CALL SYTRAN(1BIT,IBUF(BEGRPD),INCHIT,NSAMP,NBITS,STOBIT,1DATA(IADR
388. ),SKPBIT)
389. IADR=IADR+NSAMP
390.
391. 230 CONTINUE UNPACKING ONE SCAN LINE OF DATA
392. IF ((NSCAN*LI*INC).GT.LINEND) GO TO 260
393.
394. C. MAKE SURE ALL BUFFERS FOR THIS DATA SET HAVE BEEN READ
395. C.
396. 231 IF (IBUF.EQ.NSUFFS) GO TO 235

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```

00667 CALL BUFILL(REC)
00670 BUF=BUF+1
00671 CALL NTRAN(IUNIT,22)
00672 GO TO 231
00673 235 CONTINUE
00674 NSCAN=NSCAN+LININC
00675 IF(NSCAN*LT.(FSCAN+NDSPR))RETURN
00676 FSCAN=FSCAN + NDSPR*(1 + LINC/NRPDS)
00677 CALL NTRAN(IUNIT,7,LINC)
00678 IF(NSCAN*LT.(FSCAN+NDSPR)) GO TO 240
00679 CALL NTRAN(IUNIT,7,1)
00680 FSCAN=FSCAN+NDSPR
00681 240 CONTINUE
00682 C:
00683 C: INITIATE READ FOR NEXT SCAN
00684 C:
00685 REC=0
00686 BUF=1
00687 CALL BUFILL(REC)
00688 RETURN
00689 C:
00690 C: END OF DATA
00691 C:
00692 C: 250 IF(NSCAN*GT.(L+STR)NSCAN=NSCAN+LININC
00693 BLOCK(2)=NSCAN
00694 WRITE (6,320)NSCAN
00695 IF (FILENO .EQ. 0) GO TO 255
00696 C:
00697 C: BACK SPACE 1 FILE AND POSITION AT FIRST SCAN LINE
00698 C:
00699 C:
00700 CALL NTRAN(IUNIT,22,8,-1)
00701 CALL NTRAN(IUNIT,22,8,1)
00702 CALL NTRAN(IUNIT,7,1)
00703 GO TO 257
00704 255 CONTINUE
00705 C:
00706 C: REWIND TAPE AND POSITION AT FIRST SCAN LINE
00707 C:
00708 CALL NTRAN(IUNIT,22,10,22)
00709 CALL NTRAN(IUNIT,7,1)
00710 FSCAN = IFIRST
00711 ENDTAP = -1
00712 REC=0
00713 BUF=1
00714 CALL BUFILL(REC)
00715 READY=.FALSE.
00716 RETURN
00717 245 WRITE(6,173)
00718 CALL NTRAN(IUNIT,120,1,ISTAT)
00719 CALL CCHKR
00720 FORMAT(' END-OF-FILE ENCOUNTERED ON HEADER RECORD')
00721 280 FORMAT(' UNRECOVERABLE ERROR READING HEADER RECORD')
00722 290 FORMAT(' ERROR WHILE READING DATA RECORD')
00723 300 FORMAT(' A LINE NO. IS LESS THAN OR EQUAL 2FRU')
00724 310 FORMAT(' LAST SCAN LINE READ, 15, ISTAT=,15)
00725 320 FORMAT(' FIELD BOUNDARY FOR THIS FIELD DEFINED BEYOND SCOPE OF DATA')
00726 330 FORMAT(' THIS FLIGHT LINE CONTAINS 16, SCAN LINES')
00727 C:
00728 C: INTERNAL DIMENSIONS TOO SMALL FOR DATA, 40. OF CHANNEL
00729 C:
00730 C:
00731 C:
00732 C:
00733 C:
00734 C:
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IF(ISTAT.EQ.-2)RETURN 1
IF(FORMAT.EQ.1)SCAN=FLO(20,16,IRUF(16))
IF(FORMAT.EQ.2)SCAN=FLO(0,16,IBUF(1))
WRITE(6,650)SCAN,ISTAT
650 FORMAT(1X,SCAN=,15,3X,ISTAT=,13)
IF(SCAN.EQ.FSCAN)GO TO 10
IF(ISTAT.EQ.FSCAN+NDSPR)GO TO 30
CONTINUE
ITRY=ITRY+1
GO TO 5
10 WRITE(6,700)ITRY
700 FORMAT(1X,FOUND IT AFTER',13,' TRIES')
CALL MTRAN(UNIT,7,-1)
RETURN
30 IF(ITRY.LT.2)NDSPR)GO TO 6
WRITE(6,800)ITRY
800 FORMAT(1X,FAILED AFTER',15,' TRIES--ABORTING.)
CALL CMERR
30 CONTINUE
900 WRITE(6,900)FSCAN
900 FORMAT(1X,SCAN',15,' IS MISSING--USING PREVIOUS SCAN INSTEAD.)
IBACK=-1
CALL MTRAN(UNIT,7,IBACK)
RETURN 2
END

```

END OF COMPILATION: NO DIAGNOSTICS.
TAPERD CODE RELOCATABLE

TAPE 1270

21 OCT 78	17:11:18	0	01547004	19	538	(DELETED)
21 OCT 78 <td>17:11:18 <td>0 <td>01565820 <td>14 <td>169 <td>(DELETED)</td> </td></td></td></td></td>	17:11:18 <td>0 <td>01565820 <td>14 <td>169 <td>(DELETED)</td> </td></td></td></td>	0 <td>01565820 <td>14 <td>169 <td>(DELETED)</td> </td></td></td>	01565820 <td>14 <td>169 <td>(DELETED)</td> </td></td>	14 <td>169 <td>(DELETED)</td> </td>	169 <td>(DELETED)</td>	(DELETED)
		0	01565864	14		

2. FOR UNPACK, UNPACK
UNIVAC 1108 FORTRAN V EXEC I1 LEVEL 25A -(EXALCH LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 26 OCT 76 AT 18:50:39

26 OCT 76

18:50:39.156

SUBROUTINE UNPAK1 ENTRY POINT 000202
UNPAK1 ENTRY POINT 000207

STORAGE USED: CODE(1) 000232; DATA(0) 000044; BLANK COMMON(2) 000000

EXTERNAL REFERENCES (BLOCK, NAME)

0003 NADUS
0004 NI025
0005 HERR35

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001	000061	10L	0001	000124	20L	0001	000152	30L	0001	000180	40L	0000	000011	50L
0000	000010	I	0000	000032	INJPS	0000	000000	JBIT	0000	000005	JMAX	0000	000001	KBIT
0000	000002	KARD	0000	000003	KARD1	0000	000007	L	0000	000004	NAV	0000	000006	NOV

00101 1*
00102 2*
00103 3*
00104 4*
00105 5*
00106 6*
00107 7*
00108 8*
00109 9*
00110 10*
00111 11*
00112 12*
00113 13*
00114 14*
00115 15*
00116 16*
00117 17*
00118 18*
00119 19*
00120 20*
00121 21*
00122 22*
00123 23*
00124 24*
00125 25*
00126 26*
00127 27*
00128 28*
00129 29*
00130 30*

SUBROUTINE UNPAK1 (IDAT)

THIS ROUTINE UNPACKS UP TO 32-BIT IBM 360 WORDS INTO
36-BIT WORD IMAGES WHICH CAN BE READ BY THE UNIVAC 1108.

DIMENSION IDAT(11)

INITIALIZE IDAT ARRAY

JBIT = 0
KBIT = -1
KWORD = 0
KWORD1 = 0
NAV = 36
RETURN

ENTRY UNPACK (NTR, NBITS)

UNPACK MEAT NBITS FROM IREC ARRAY INTO NTR

IF (NBITS.GT.32) GO TO 49
IF (NBITS.LE.0) GO TO 30

KBIT = KBIT + NBITS

KWORD = KBIT / 36

IF (NAV.LT.NBITS) GO TO 10

NTR = FLOOR(JBIT/NBITS, 1) + 1

JBIT = JBIT + NBITS

NAV = NAV + NBITS

KWORD1 = KWORD

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UNPC0002
UNPC0003
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UNPC0014
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UNPC0027
UNPC0028
UNPC0029

26 OCT 76 18:50:40.51:

FOR: IDHRR IDHRR
UNIVAC 1109 FORTRAN V EXEC II LEVEL 25A - (EXEC8 LEVEL E12D10010A)
THIS COMPILATION WAS DONE ON 26 OCT 76 AT 18:50:40

SUBROUTINE IDHEAD ENTRY POINT 000726

STORAGE USED: CODE(1) 000743: DATA(0) 003165: BLANK COMMON(2) 000000

COMMON BLOCKS:

0003 HDATA 000026

EXTERNAL REFERENCES (BLOCK, NAME)

0004 UNPKA
0005 COVER
0006 APRTS
0007 NI01\$
0010 NI02\$
0011 NERR3\$

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

Block	Type	Relative Location	Name
0000	002560	103F	0000
0000	002710	125F	0000
0000	003013	150F	0000
0000	003113	170F	0000
0000	002505	65F	0000
0000	002551	95F	0000
0000	002466	HEAD1	0000
0000	003150	INJPS	0000
0003	000025	LOMMIN	0003
0003	000017	MTSSEC	0003
0000	002567	105F	0000
0000	002717	130F	0000
0000	000070	151G	0000
0001	000167	2900	0001
0000	002513	70F	0000
0003	R 000004	AI	0003
0003	R 002467	HEAD2	0003
0003	I 000012	ISITE	0003
0003	I 000000	MASK	0003
0003	I 000020	NORSOU	0003
0000	002603	115F	0000
0000	002775	135F	0000
0000	003047	155F	0000
0001	000260	236G	0001
0000	002522	75F	0000
0000	000002	80	0000
0003	R 002465	I	0003
0003	I 000022	LATDEG	0003
0003	I 000014	MISDAY	0003
0003	I 000001	SUNAZ	0003
0001	000025	115G	0001
0000	003004	140F	0000
0000	003063	160F	0000
0001	003335	261G	0001
0000	002531	80F	0000
0000	000001	ERCJIC	0000
0003	I 000013	TOERIS	0003
0003	I 000023	LATHR	0003
0003	I 000015	MISHR	0003
0003	I 000000	SUNEL	0003
0000	002625	120F	0000
0001	000057	142G	0001
0000	003077	165F	0000
0000	002470	60F	0000
0000	002540	85F	0000
0000	001233	HEADER	0000
0003	I 000021	IEW	0003
0003	I 000024	LONDEG	0003
0003	I 000016	MISHIN	0003

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SUBROUTINE IDHEAD(HEADAB)
PARAMETER NCH=4
DATA MASK/077777/
COMMON /HDATA/ SUNEL, SUNAZ, BU(MCH), AI(MCH), ISITE, IDPRTS,
1 MISDAY, MISHR, MISHIN, MISSEC, NORSOU, IEW, LATDEG,
2 LATMIN, LONDEG, LOMMIN
INTEGER HEADAB(6800), ERCJIC(666), HEADER(666), SUNEL, SUNAZ
C
50 CALL UNPKB(HEADAB,ERCJIC,68,1)
CALL UNPKB(HEADAB,HEADER,66,1)
CALL COVER(ERCJIC,66)
PRINT 60,IEBCJIC(1),1=1,32)
C
50 FORMAT(/ 20X, *HEADER : / 20X, *-----, // 20X,
C *COMPUTING SYSTEM ID*, 10X, 34R1)
C

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00123 PRINT 65, EBCDIC(34)
00124 65 FORMAT( 20X, LAST DIGIT OF YEAR ', 10X, 11)
00125 PRINT 70, EBCDIC(35), EBCDIC(36), EBCDIC(37)
00126 70 FORMAT( 20X, DAY NUMBER OF YEAR ', 10X, 311)
00127 C
00128 PRINT 75, EBCDIC(38)
00129 75 FORMAT( 20X, DAILY TAPE SERIAL NO., 8X, 13)
00130 C
00131 PRINT 80, (EBCDIC(1), I=53, 60)
00132 80 FORMAT( 20X, SENSOR ID ', 10X, 8R1)
00133 C
00134 PRINT 85, (HEADER(1), I=61, 63)
00135 85 FORMAT( 20X, DATE ', 10X, 12, '/', 12, '/', 12)
00136 C
00137 FLD(23, 8, HEADER(66)) = FLD(28, 8, HEADER(65))
00138 PRINT 95, HEADER(66)
00139 95 FORMAT( 20X, ERTS MISSION NUMBER ', 10X, 113)
00140 C
00141 FLD(29, 8, HEADER(68)) = FLD(26, 8, HEADER(67))
00142 PRINT 100, HEADER(68)
00143 100 FORMAT( 20X, SITE - SAMPLE SEG. NO., 10X, 114)
00144 C
00145 ISITC = HEADER(68)
00146 CALL UNPK8(HEADAB, EBCDIC(60, 2110))
00147 CALL UNPK8(HEADAB, HEADER(60, 2110))
00148 CALL COVER(EBCDIC(60))
00149 C
00150 PRINT 105, HEADER(1)
00151 105 FORMAT( 20X, CLOUD COVER', 12, PERCENT OF 10X11 NM SEARCH AREA
00152 . COVERED BY CLOUDS')
00153 C
00154 PRINT 115, HEADER(13)
00155 115 FORMAT( 20X, FLAG INDICATING WHETHER A REFERENCE SCENE HAS BEEN
00156 . USED FOR REGISTRATION---FLAG', 11)
00157 C
00158 PRINT 120, (EBCDIC(1), I=14, 22)
00159 120 FORMAT( 20X, ERTS SCENE/FRAME ID NUMBER FOR MLN DATA', 10X,
00160 . 11, ERTS MISSION NUMBER', 10X,
00161 . 311, DAY NUMBER RELATIVE TO LAUNCH AT TIME OF OBSERVATION', 10X,
00162 . 21X, 211, HOUR AT TIME OF OBSERVATION', 10X,
00163 . 211, MINUTE AT TIME OF OBSERVATION', 10X,
00164 . 21X, 11, TENS OF SECONDS AT TIME OF OBSERVATION')
00165 C
00166 IDERTS = EBCDIC(14)
00167 MISDAY = 100 * EBCDIC(15) + 10 * EBCDIC(16) + EBCDIC(17)
00168 MISHR = 10 * EBCDIC(18) + EBCDIC(19)
00169 MISMIN = 10 * EBCDIC(20) + EBCDIC(21)
00170 MISSEC = EBCDIC(22)
00171 PRINT 125, HEADER(24)
00172 125 FORMAT( 20X, DATA QUALITY CLASSIFICATION', 11)
00173 C
00174 IF (EBCDIC(25) .EQ. 19) EBCDIC(25) = 6H NORTH
00175 IF (EBCDIC(25) .EQ. 24) EBCDIC(25) = 6H SOUTH
00176 IF (EBCDIC(31) .EQ. 28) EBCDIC(31) = 6H WEST
00177

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00232 IF EBCDIC(31) .EQ. 10) EBCDIC(31)=6HEAST
00233 PRINT 130, (EBCDIC(1), I=25, 34)
00234 FORMAT( 20X, 'CENTER OF SAMPLE SEGMENT', //, 21X,
00242 'LATITUDE (GEODETIC) ', //, 21X, A6, //, 21X,
00242 'DEGREES' = '311, //, 21X,
00242 'MINUTES' = '211, //, 21X,
00242 'LONGITUDE (GEODETIC) ', //, 21X, A6, //, 21X,
00242 'DEGREES' = '311, //, 21X,
00242 'MINUTES' = '211)
00243 C
00244 NORSSU = EBCDIC(25)
00245 IEN = EBCDIC(31)
00246 LAIDEG = 100 * EBCDIC(26) + 10 * EBCDIC(27) + EBCDIC(28)
00247 LATMIN = 10 * EBCDIC(29) + EBCDIC(30)
00248 LONGDEG = 100 * EBCDIC(32) + 10 * EBCDIC(33) + EBCDIC(34)
00249 LONGMIN = 10 * EBCDIC(35) + EBCDIC(36)
00250 C
00251 PRINT 135, EBCDIC(54), EBCDIC(55)
00252 FORMAT( 20X, 'SUM ELEVATION (DEGREES) ', 211)
00253 C
00254 SUMEL = 10 * EBCDIC(54) + EBCDIC(55)
00255 C
00256 PRINT 140, (EBCDIC(1), I=59, 61)
00257 FORMAT( 20X, 'SUN AZIMUTH (DEGREES) ', 311)
00258 C
00259 SUMAZ = 100 * EBCDIC(59) + 10 * EBCDIC(60) + EBCDIC(61)
00260 CALL UPAD(HEADAB, HEADR, 10, 2043)
00261 C
00262 PRINT 150
00263 FORMAT( 20X, 'BIAS FACTORS AND SCALING FACTORS-SIGNED BINARY', //,
00264 '21X, FOUR BYTES PER CHANNEL, WHERE FIRST TWO BYTES=BIAS FACTOR', //,
00265 '21X, SECOND TWO BYTES=SCALING FACTOR', //)
00266 C
00267 FLD(20, 8, HEADR(2)) = FLD(25, 8, HEADR(1))
00268 FLD(20, 8, HEADR(4)) = FLD(28, 8, HEADR(3))
00269 IF FLD(20, 1, HEADR(2)) .EQ. 1)
00270 HEADR(2) = (AND(MASK, HEADR(2)))
00271 HEADR(2) = FLD(20, 1, HEADR(2)) / 10.
00272 IF FLD(20, 1, HEADR(4)) .EQ. 1)
00273 HEADR(4) = (AND(MASK, HEADR(4)))
00274 HEADR(4) = FLD(20, 1, HEADR(4)) / 10.
00275 PRINT 155, HEAD1, HEAD2
00276 FORMAT( 20X, 'CHANNEL 1 BIAS FACTOR=', F10.1, //, 30X,
00277 'SCALING FACTOR=', F10.1)
00278 C
00279 B011 = HEAD1
00280 A111 = HEAD2
00281 C
00282 FLD(20, 8, HEADR(6)) = FLD(24, 8, HEADR(5))
00283 FLD(20, 8, HEADR(8)) = FLD(28, 8, HEADR(7))
00284 IF FLD(20, 1, HEADR(6)) .EQ. 1)
00285 HEADR(6) = (AND(MASK, HEADR(6)))
00286 HEADR(6) = FLD(20, 1, HEADR(6)) / 10.
00287 IF FLD(20, 1, HEADR(8)) .EQ. 1)
00288 HEADR(8) = (AND(MASK, HEADR(8)))
00289 HEADR(8) = FLD(20, 1, HEADR(8)) / 10.
00290 C
00291 C
00292 C
00293 C
00294 C
00295 C
00296 C
00297 C
00298 C
00299 C
00300 C
00301 C
00302 C
00303 C
00304 C
00305 C
00306 C
00307 C
00308 C
00309 C
00310 C
00311 C
00312 C
00313 C
00314 C
00315 C
00316 C
00317 C

```


FOR... COVER COVER
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A - (EXLCS LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 26 OCT 76 AT 18:50:42

26 OCT 76

16:50:42.76-

SUBROUTINE COVER ENTRY POINT 070771

STORAGE USED: CODE(1) 000102: DATA(0) 000414: BLANK COMMON(2) 000000

EXTERNAL REFERENCES (BLOCK, NAME)

0003 WEYR35

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001 000055 103L 0001 000007 1215 0001 000043 50L
0000 1 000400 1 0000 1 000001 1C 0000 1 000401 1H
0000 1 000402 7CL 0001 000052 7CL
0000 1 000402 1NJP5 0000 000000 BLANK

10 C
20 CONVERT ESCDIC TO FIELDATA
30
40 SUBROUTINE COVER(FIELD1, NCHAR)
50 INTERFER FIELD(666), BLANK
60 DIMENSION IC(255)
70 DATA (IC(1), 1)=193, 2011/6, 7, 8, 9, 10, 11, 12, 13, 14/
80 DATA (IC(1), 1)=209, 2171/15, 16, 17, 18, 19, 20, 21, 22, 23/
90 DATA (IC(1), 1)=226, 2331/24, 25, 26, 27, 28, 29, 30, 31/
100 DATA (IC(1), 1)=240, 2491/0, 1, 2, 3, 4, 5, 6, 7, 8, 9/
110 DATA IC(64)/5/
120 BLANKS
130 GO TO 100
140 IF(1H .EQ. 1) NCHAR
150 IM=FIELD(1)
160 IF(1H .GT. 12) .AND. IM .LT. 250 .OR. IM .EQ. 6+
170 .OR. IM .EQ. 0) GO TO 50
180 FIELD(1)=BLANK
190 GO TO 100
200 CONTINUE
210 IF(1H) 60, 60, 70
220 IF(1H .EQ. 0) FIELD(1)=7
230 GO TO 100
240 FIELD(1)=IC(1H)
250 CONTINUE
260 RETURN
270 END

END OF COMPILATION: NO DIAGNOSTICS.

COVER CODE SYMBOLIC
COVER RELUCATABLE

21 OCT 76 17:11:21 21 OCT 76 17:11:21 21 OCT 76 17:11:21
0 01604262 0 01604262 0 01604262
14 25 (DELETED)
14 11

Q FOR. UNPK8, UNPK8
UNIVAC 1108 FORTRAN V EXEC 11 LEVEL 25A - (EXEC8 LEVEL E12010U10A)
THIS COMPILATION WAS DONE ON 26 OCT 76 AT 18:50:43

26 OCT 76

18:50:43.78

SUBROUTINE UNPK8 ENTRY POINT 000211

STORAGE USED: CODE(1) 000221: DATA(0) 000016: BLANK COMMON(2) 000000

EXTERNAL REFERENCES (BLOCK, NAME)

0003 NERR25
0004 NERR35

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001	000045 11L	0001	000054 12L	0001	000064 13L	0001	000074 14L	0001	000104 15L
0001	000126 16L	0001	000136 17L	0001	000146 18L	0001	000156 19L	0001	000001 1C
0000	000004 INJP	0000	000002 J	0000	000000 K	0000	000003 NP	0000	000001 1C

```

SUBROUTINE UNPK8(KI,KO,M,IS)
DIMENSION KI(1),KO(1)
K=15-1
IC=(K*2)/9+1
J=1ABS(MOD(K,9))+1
NP=2-J
GO TO (11,12,13,14,15,16,17,18,19),J
K0(NP)=FLO(0.8,KI(1C))
K0(NP+1)=FLO(0.8,KI(1C))
K0(NP+2)=FLO(0.8,KI(1C))
K0(NP+3)=FLO(0.8,KI(1C))
IC=IC+1
K0(NP+4)=FLO(0.8,KI(1C))
FLO(28,4,K0(NP+4))=FLO(32,4,KI(1C-1))
K0(NP+5)=FLO(0.8,KI(1C))
K0(NP+6)=FLO(0.8,KI(1C))
K0(NP+7)=FLO(0.8,KI(1C))
K0(NP+8)=FLO(0.8,KI(1C))
IC=IC+1
NP=NP+9
IF(NP.LE.N, GO TO 11
RETURN
END

```

END OF COMPILATION: NO DIAGNOSTICS.
UNPK8 SYMBOLIC
UNPK8 RELOCATABLE

21 OCT 76	17:11:22	0	01604514	14	23	(DELETED)
21 OCT 76	17:11:22	0	01605216	24	15	(DELETED)

9 ASM, BYTRAN, BYTRAN
 ASSEMBLED BY UNIVAC 1108 EXEC II ASSEMBLER 2404 0000A
 THIS ASSEMBLY WAS DONE ON 26 OCT 76 AT 18:50:45

26 OCT 76

18:50:44.94

CALL BYTRAN(SBIT1, SWORD1, SBSKP, NBYTES, BYTESZ, DBIT1, DWORD1, DBSKP)

SBIT1 = BIT NO. OF FIRST BIT, FIRST BYTE, FIRST
 SOURCE WORD (= 1, 2, 3, ..., 36 LEFT-TO-RIGHT)
 SWORD1 = FIRST SOURCE WORD ADDRESS
 SBSKP = NO. OF BITS TO SKIP BETWEEN BYTES, IN SOURCE
 BYTE STRING
 IF = 0, BYTES ARE A CONTIGUOUS BYTE STRING
 IF .GT. 0, STARTING WITH BYTE 1 LEFT JUSTIFIED TO SBIT1,
 NBYTES BYTES ARE UNPACKED EVERY SBSKP BITS,
 WORD BOUNDARIES IGNORED IN UNPACKING SOURCE BYTE
 STRING

NBYTES = TOTAL NO. OF BYTES TO BE UNPACKED FROM SOURCE STRING
 AND PACKED INTO DESTINATION STRING

BYTESZ = BYTE SIZE (NO. OF BITS/BYTE)

DBIT1 = BIT NO. FOR FIRST BIT OF FIRST BYTE, FIRST WORD OF
 DESTINATION STRING (= 1, 2, 3, ..., 36 LEFT-TO-RIGHT)

DWORD1 = FIRST DESTINATION WORD ADDRESS

DBSKP = NO. BITS TO SKIP BETWEEN BYTES PACKED INTO DESTINATION
 BYTE STRING

IF = 0, BYTES ARE PACKED IN A CONTIGUOUS BYTE STRING
 WITH FIRST BYTE LEFT-JUSTIFIED TO DBIT1 OF DWORD1

IF .GT. 0, DBSKP BITS ARE SKIPPED OVER BETWEEN BYTES
 WHEN PACKING THE BYTES IN THE DESTINATION
 STRING

NBYTES AND BYTESZ ARE COMMON TO SOURCE AND DESTINATION BYTE
 STRINGS. OTHER VARIABLES INDEPENDENT OF EACH OTHER.

NOTE: THIS VERSION OF BYTRAN TESTS FOR
 THE PACKING MODE TO BE RIGHT-JUSTIFICATION OF
 THE BYTE IN THE DESTINATION WORDS. IF
 RIGHT-JUSTIFY IS THE PACKING MODE, BYTRAN WILL
 ZERO THE DESTINATION WORD PRIOR TO PACKING.

ALSO, ONLY ASCENDING WORD ADDRESSES ARE
 ALLOWED IN THE SOURCE STRING AND
 DESTINATION STRING.

EXECUTION TIME = .075 MILLISEC PER BYTE

114

11

(17) 5

• RIGHT-JUSTIFY FLAG SET

- INITIALIZE MASK REGISTER

000172	000141	71	12	10	00	1	000025	.	DS	A14,00WD	TO ORIGINAL BIT POSITIONS
000173	000142	12	00	00	00	0	000014	.	LHA	A0,CUMIN	DESTINATION WDI,WDI+1 RETURNED,
000174	000143	14	00	00	00	0	000022		A	A6,ISKP	WITH PACKED BYTE
000175	000144	03	00	00	00	0	000014		SM	A6,CUMIN	
000176	000145	12	00	11	00	0	000015		LNA	A9,CUMOUT	CUMIN UPDATED FOR BYTE SIZE AND OFFSET
000177	000146	14	00	11	00	0	000023		SM	A9,USKP	
000178	000147	03	00	11	00	0	000015		JGN	A9,CUMOUT	CUMOUT UPDATED FOR BYTE SIZE AND OFFSET
000179	000148	03	00	11	00	0	000062		DL	X1,NOMWD	DECREMENT BYTE COUNT, GO GET NEXT SOURCE BYTE
000180	000149	70	00	01	00	0	000002		LA	A4,RSAVE	
000181	000150	71	13	04	00	0	000004		LX	A6,RSAVE*2	
000182	000151	10	00	00	00	0	000005		LX	X1,RSAVE*3	
000183	000152	27	00	01	00	0	000006		LX	X2,RSAVE*4	
000184	000153	27	00	02	00	0	000007		LR	R1,RSAVE*5	
000185	000154	23	00	01	00	0	000010		LX	R2,RSAVE*6	
000186	000155	23	00	02	00	0	000011		J	X11,RETADD	
000187	000156	27	00	13	00	0	000001				
000188	000157	74	04	03	13	0	000011				
000189	000158										
000190	000159										
000191	000160										
000192	000000	32	03	12	06	23			+	*BYTRAN*	RETURN TO CALLING PROGRAM
000193	000001	30	00	00	00	00			+	0	
000194	000002								+	7	
000195	000011	00	00	00	00	00			+	U	
000196	000012	00	00	00	00	01			+	U	
000197	000013	00	00	00	00	04			+	1	
000198	000014	00	00	00	00	00			+	30	
000199	000015	00	00	00	00	00			+	0	
000200	000016	00	00	00	00	00			+	0	
000201	000017	77	77	77	77	77			+	0	
000202	000020	00	00	00	00	00			+	0	
000203	000021	00	00	00	00	00			+	0	
000204	000022	00	00	00	00	00			+	0	
000205	000023	00	00	00	00	00			+	0	
000206	000024	00	00	00	00	00			+	0	
000207	000025	00	00	00	00	00			+	0	
000208	000026	00	00	00	00	00			+	0	
000209	000027	00	00	00	00	00			+	0	
000210	000028	00	00	00	00	00			+	0	
000211	000029	00	00	00	00	00			+	0	
000212	000030	00	00	00	00	00			+	0	
000213	000031	00	00	00	00	00			+	0	
000214	000032	00	00	00	00	00			+	0	
000215	000033	00	00	00	00	00			+	0	
000216	000034	00	00	00	00	00			+	0	
000217	000035	00	00	00	00	00			+	0	
000218	000036	00	00	00	00	00			+	0	
000219	000037	00	00	00	00	00			+	0	
000220	000038	00	00	00	00	00			+	0	
000221	000039	00	00	00	00	00			+	0	
000222	000040	00	00	00	00	00			+	0	
000223	000041	00	00	00	00	00			+	0	
000224	000042	00	00	00	00	00			+	0	
000225	000043	00	00	00	00	00			+	0	
000226	000044	00	00	00	00	00			+	0	
000227	000045	00	00	00	00	00			+	0	
000228	000046	00	00	00	00	00			+	0	
000229	000047	00	00	00	00	00			+	0	
000230	000048	00	00	00	00	00			+	0	
000231	000049	00	00	00	00	00			+	0	
000232	000050	00	00	00	00	00			+	0	
000233	000051	00	00	00	00	00			+	0	
000234	000052	00	00	00	00	00			+	0	
000235	000053	00	00	00	00	00			+	0	
000236	000054	00	00	00	00	00			+	0	
000237	000055	00	00	00	00	00			+	0	
000238	000056	00	00	00	00	00			+	0	
000239	000057	00	00	00	00	00			+	0	
000240	000058	00	00	00	00	00			+	0	
000241	000059	00	00	00	00	00			+	0	
000242	000060	00	00	00	00	00			+	0	
000243	000061	00	00	00	00	00			+	0	
000244	000062	00	00	00	00	00			+	0	
000245	000063	00	00	00	00	00			+	0	
000246	000064	00	00	00	00	00			+	0	
000247	000065	00	00	00	00	00			+	0	
000248	000066	00	00	00	00	00			+	0	
000249	000067	00	00	00	00	00			+	0	
000250	000068	00	00	00	00	00			+	0	
000251	000069	00	00	00	00	00			+	0	
000252	000070	00	00	00	00	00			+	0	
000253	000071	00	00	00	00	00			+	0	
000254	000072	00	00	00	00	00			+	0	
000255	000073	00	00	00	00	00			+	0	
000256	000074	00	00	00	00	00			+	0	
000257	000075	00	00	00	00	00			+	0	
000258	000076	00	00	00	00	00			+	0	
000259	000077	00	00	00	00	00			+	0	
000260	000078	00	00	00	00	00			+	0	
000261	000079	00	00	00	00	00			+	0	
000262	000080	00	00	00	00	00			+	0	
000263	000081	00	00	00	00	00			+	0	
000264	000082	00	00	00	00	00			+	0	
000265	000083	00	00	00	00	00			+	0	
000266	000084	00	00	00	00	00			+	0	
000267	000085	00	00	00	00	00			+	0	
000268	000086	00	00	00	00	00			+	0	
000269	000087	00	00	00	00	00			+	0	
000270	000088	00	00	00	00	00			+	0	
000271	000089	00	00	00	00	00			+	0	
000272	000090	00	00	00	00	00			+	0	
000273	000091	00	00	00	00	00			+	0	
000274	000092	00	00	00	00	00			+	0	
000275	000093	00	00	00	00	00			+	0	
000276	000094	00	00	00	00	00			+	0	
000277	000095	00	00	00	00	00			+	0	
000278	000096	00	00	00	00	00			+	0	
000279	000097	00	00	00	00	00			+	0	
000280	000098	00	00	00	00	00			+	0	
000281	000099	00	00	00	00	00			+	0	
000282	000100	00	00	00	00	00			+	0	
000283	000101	00	00	00	00	00			+	0	
000284	000102	00	00	00	00	00			+	0	
000285	000103	00	00	00	00	00			+	0	
000286	000104	00	00	00	00	00			+	0	
000287	000105	00	00	00	00	00			+	0	
000288	000106	00	00	00	00	00			+	0	
000289	000107	00	00	00	00	00			+	0	
000290	000108	00	00	00	00	00			+	0	
000291	000109	00	00	00	00	00			+	0	
000292	000110	00	00	00	00	00			+	0	
000293	000111	00	00	00	00	00			+	0	
000294	000112	00	00	00	00	00			+	0	
000295											

TAPLAB	CUDF	SYMBOLIC RELOCATABLE	A7,AD A8,01,X11	TEST FIRST POSITION OF LABEL IF FIRST CHARACTER LESS THAN OCTAL 05, STORE A 'BLANK' IN 1 ST CHARACTER OF LABEL RETURN TO CALLING PROGRAM	14 12 14	(DELETED) (DELETED)
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B-71

Q XQT PFCGAB

26 OCT 76

18:50:49.99

STARTING ADDRESS 014000 163772 163777
CORE LIMITS 014000 037205 100000 150125

PFCGAB/CODE
0 100000-114360
1 014000-020052
NSTOPS/RLECS
1 020053-020064
NERN\$ /RLECS
0 114361-114550
1 020065-020527
SORT /RL24
0 114551-114554
1 020530-020567
2 114555-114562
NIERN\$ /RLECS
0 114563-114563
1 020570-021075
2 114564-114662
NFMIS /RLECS
1 021076-022033
2 114661-114675
NFTVS /RL22
1 022034-022056
NCNVIS/RLECS
1 022057-022303
2 114676-114764
NOTINS/RLECS
1 022304-022753
2 114765-115033
FPACKS/CODE
1 022754-023017
DEPTH /.....

B-72

APPENDIX C
PFCGAB SAMPLE OUTPUT

SAMPLE PFCGAB OUTPUT
FOR
ERIPS "MERGE" TAPE PROCESSING

SAMPLE OUTPUT : 16-CHANNEL "MERGE" TAPE

INPUT IMAGE DATA TAPE INFORMATION:

FORMAT UNIVERSAL
NO. OF CHANNELS 16
NO. OF PIXELS/LINE 196

HEADER :

COMPUTING SYSTEM ID ERIPS
LAST DIGIT OF YEAR 885
DAY NUMBER OF YEAR 5
DAILY TAPE SERIAL NO. ERTS MSS
SENSOR ID 29/7/76
DATE 1999
ERTS MISSION NUMBER 2
SITE "SAMPLE SER. NO. OF 10X11 MM SEARCH AREA COVERED BY CLOUDS
CLOUD COVER PERCENT. A REFERENCE SCENE HAS BEEN USED FOR REGISTRATION-----FLAG=1
FLAG INDICATING WHETHER A REFERENCE SCENE HAS BEEN USED FOR REGISTRATION-----FLAG=1
(RTS SCENE)FRAME ID NUMBER FOR NEW DATA)
2 = ERTS MISSION NUMBER
211 = DAY NUMBER RELATIVE TO LAUNCH AT TIME OF OBSERVATION
17 = HOUR AT TIME OF OBSERVATION
38 = MINUTE AT TIME OF OBSERVATION
5 = TENS OF SECONDS AT TIME OF OBSERVATION
DATA QUALITY CLASSIFICATION=1
CENTER OF SAMPLE SEGMENT

LATITUDE (GEODETIC)
DEGREES NORTH = 048
MINUTES = 53

LONGITUDE (GEODETIC)
DEGREES WEST = 111
MINUTES = 47
SUN ELEVATION (DEGREES) 45
SUN AZIMUTH (DEGREES) 135
BIAS FACTORS AND SCALING FACTORS-SIGNED BINARY
FOUR BYTES PER CHANNEL, WHERE FIRST TWO BYTES=BIAS FACTOR.
SECOND TWO BYTES=SCALING FACTOR.
CHANNEL 1 BIAS FACTOR= 5.3
SCALING FACTOR= -41.8
CHANNEL 2 BIAS FACTOR= 3.8
SCALING FACTOR= -96.6
CHANNEL 3 BIAS FACTOR= 4.3
SCALING FACTOR= -64.9
CHANNEL 4 BIAS FACTOR= 9.1
SCALING FACTOR= -3070.9

FIRST SCAN LINE NO. 1 FIRST PIXEL REFERENCE PT. 1

FROM PFCGAR:

FILE NO. 1 , NO. SCAN LINES HEAD = 117 , FOR IMAGE NO. 1

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ORIGINAL PAGE IS
OF POOR QUALITY

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 1 SUN ELEV= 0

5 X 6 AREA

FREQUENCY DISTRIBUTION

PIXEL VALUE	BAND 1		BAND 2		BAND 3		BAND 4	
	FREQ	%	FREQ	%	FREQ	%	FREQ	%
0							3	0.1
1							20	0.2
2							44	0.4
3	3	0.0			3	0.0	101	0.3
4	19	0.1			8	0.0	39	0.2
5	14	0.1			16	0.0	65	0.5
6	19	0.1			12	0.0	114	0.5
7	4	0.0			6	0.0	123	0.2
8	27	0.2			5	0.0	149	0.2
9	12	0.1			3	0.0	23	0.1
10	23	0.1			3	0.0	34	0.1
11	19	0.1			2	0.0	36	0.2
12	14	0.1			1	0.0	48	0.3
13	24	0.1			5	0.0	60	0.3
14	36	0.2			6	0.0	145	0.3
15	29	0.1			4	0.0	105	0.5
16	122	0.9			11	0.0	141	0.5
17	125	0.9			15	0.0	159	0.5
18	137	1.0			22	0.0	287	0.5
19	139	1.0			22	0.0	343	0.3
20	152	1.1			22	0.0	357	0.3
21	164	1.2			1	0.0	191	0.3
22	186	1.4			9	0.0	405	0.8
23	122	0.9			42	0.2	197	0.7
24	125	0.9			37	0.1	227	0.7
25	137	1.0			17	0.0	2	0.0
26	139	1.0			19	0.0	2	0.0
27	152	1.1			28	0.0		
28	164	1.2			32	0.1		
29	186	1.4			40	0.2		
30	122	0.9			30	0.1		

C-2

49	2303	13.7	55	2.7	106	.5
40	1775	3.5	1007	4.4	93	.4
41	2625	11.4	1281	1.2	146	.6
42	1586	3.7	1279	5.6	492	2.1
43	1849	9.0	673	2.9		
44	2067	2.1	1751	7.6	302	1.3
45	471	1.9	926	4.0	1459	6.4
46	438	1.9	1990	8.7	1291	1.3
47	440	1.7	1043	4.5	1305	5.7
48	227		1423	2.3	1704	1.3
49	156		3033	3.2	1436	4.8
50	82	.4	1426	6.2	1780	1.9
51	77	.3	407	1.8	1798	7.8
52	10	.0	924	4.0	617	7.8
53	33	.0	163	.7	1951	2.7
54	11	.1	1129	4.9	1388	8.5
55	4	.0	1466	2.0	1762	6.1
56		.0			1172	7.7
57		.0			1108	5.1
58		.0			884	4.8
59		.0	447	1.9	924	4.3
60		.0	265	1.2	390	3.9
61		.5	123	.3	406	4.0
62		.3	159	.5	773	3.4
63		.0	18	.0	483	3.4
64		.1	45	.2	51	1.8
65		.2			154	2.1
66					190	.2
67					53	.8
68					20	.2
69					21	.1
70						.1
71						.0
72						.0
73						.0
74						.0
75						.0
76						.0
77						.0

C-3

FILE: 1 MERGE TAPE: 10009 IMAGE NO. 1 SUN ELEV# 0

STATISTICS

5 X 6 AREA

	BAND 1			BAND 2			BAND 3			BAND 4		
	5 X 6 AREA DATA	SUN ELEV CORR		5 X 6 AREA DATA	SUN ELEV CORR		5 X 6 AREA DATA	SUN ELEV CORR		5 X 6 AREA DATA	SUN ELEV CORR	
MIN	12			9			3			0		
MAX	63			70			77			34		
RANGE	48			67			74			34		
MEAN	39.2		P2=	46.1			53.2			21.5		
STD DEVIATION	5.4		S2=	8.5			7.3			3.7		
MEAN DEVIATION	4.3			6.7			5.3			2.4		
MEDIAN	39			48			54			22		
MODE	42			51			54			22		

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FILE: 1 MERGE TAPE: 10008 IMAGE NO. 1 SUN ELEV= 0

5 X 6 AREA

PERCENT EXCEEDING SELECTED VALUES

	BAND 1 -----	BAND 2 -----	BAND 3 -----	BAND 4 -----
% > 60	.0	2.8	17.3	.0
% > 90	.0	.0	.0	.0

FILE: 1 MERGE TAPE: 10000 IMAGE NO. 1 SUN ELEV= 0

	AREA				TRUNCATED				MOD.			
	(10 X 11) (5 X 6)								STD DEV			
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	AVERAGE	PERCENT
BAND 1	12	60	4	120	10	80	20	60				
GAIN	7.8	A3=	7.8	A4=	7.8	A5=	8.1	A6=	11.8	A7=	9.9	A8= 6.2
BIAS	-22.9	B3=	-22.9	B4=	-22.9	B5=	-23.5	B6=	-28.4	B7=	-26.3	B8= -15.0
MEAN	39.2	P3=	39.2	P4=	39.2	P5=	39.3					
STD DEV	5.4	S3=	5.4	S4=	5.4	S5=	5.3					
BAND 2	9	76	3	120	10	80	20	60				
GAIN	5.0	A3=	5.0	A4=	5.0	A5=	5.4	A6=	7.5	A7=	6.4	A8= 4.3
BIAS	-20.7	B3=	-20.7	B4=	-20.7	B5=	-22.3	B6=	-29.2	B7=	-26.2	B8= -12.0
MEAN	46.1	P3=	46.1	P4=	46.1	P5=	46.0					
STD DEV	6.5	S3=	8.5	S4=	6.5	S5=	7.9					
BAND 3	3	77	5	120	10	80	20	60				
GAIN	5.8	A3=	5.9	A4=	6.2	A5=	7.3	A6=	8.8	A7=	8.1	A8= 3.9
BIAS	-31.3	B3=	-31.6	B4=	-32.6	B5=	-34.5	B6=	-38.6	B7=	-37.5	B8= -6.0
MEAN	53.2	P3=	53.3	P4=	53.4	P5=	52.0					
STD DEV	7.3	S3=	7.2	S4=	6.9	S5=	5.8					
BAND 4	0	34	2	61	5	40	7	30				
GAIN	11.6	A3=	11.8	A4=	13.6	A5=	14.5	A6=	17.4	A7=	17.9	A8= 9.1
BIAS	-16.4	B3=	-10.6	B4=	-12.3	B5=	-12.9	B6=	-14.1	B7=	-14.4	B8= -2.0
MEAN	21.5	P3=	21.5	P4=	21.7	P5=	21.8					
STD DEV	3.7	S3=	3.4	S4=	3.1	S5=	3.0					

```

FILE: 1      MERGE TAPE: 10000      IMAGE NO: 1      SUN ELEV: 0

BAND 1
  GAIN  A11= 9.4  A12= 11.9  A13= 14.9  A14= 8.8  A15= 12.8  A16= 6.2  A17= 8.8  A18= 12.8
  BIAS  B11= -25.6  B12= -28.5  B13= -30.6  B14= -23.0  B15= -29.0  B16= -22.0  B17= -26.0  B18= -29.0

BAND 2
  GAIN  A11= 6.0  A12= 7.7  A13= 9.6  A14= 6.1  A15= 8.0  A16= 4.3  A17= 6.1  A18= 8.0
  BIAS  B11= -24.9  B12= -29.5  B13= -32.8  B14= -21.0  B15= -28.0  B16= -9.0  B17= -9.0  B18= -9.0

BAND 3
  GAIN  A11= 7.0  A12= 9.7  A13= 12.2  A14= 5.7  A15= 9.5  A16= 3.9  A17= 5.7  A18= 9.5
  BIAS  B11= -35.0  B12= -40.1  B13= -42.7  B14= -22.0  B15= -37.0  B16= -3.0  B17= -3.0  B18= -3.0

BAND 4
  GAIN  A11= 13.9  A12= 21.5  A13= 26.9  A14= 10.2  A15= 13.5  A16= 9.1  A17= 10.2  A18= 13.5
  BIAS  B11= -12.3  B12= -15.6  B13= -16.7  B14= -3.0  B15= -8.0  B16= -19.0  B17= -19.0  B18= -19.0

```

MAX(HI)/MIN(LO) P1/S1 P2/S2

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BANDS      GAIN      A19= 5.0      A26= 4.5
1, 2, 2(4)  BIAS      B19= -20.7    B26= -62.4

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BANDS      GAIN      A20= 4.7      A27= 4.6
2, 3, 2(4)  BIAS      B20= -20.7    B27= -91.4

```

FILE: 1 MERGE TAPE: 13008 IMAGE NO. 1 SUN ELEV= 0

TRUNCATED @ P2 +/- 3 S2 TRUNCATED @ P2(NEW) +/- 3 S2(NEW)

BAND 1

GAIN , BIAS

A21= 8.3 , B21= -23.9

A22= 8.4 , B22= -24.1

BAND 2

GAIN , BIAS

A21= 5.2 , B21= -21.9

A22= 5.3 , B22= -22.1

BAND 3

GAIN , BIAS

A21= 7.1 , B21= -35.8

A22= 7.4 , B22= -36.4

BAND 4

GAIN , BIAS

A21= 17.0 , B21= -14.4

A22= 18.1 , B22= -14.9

ORIGINAL PAGE IS
OF POOR QUALITY

C-8

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 1 SUN ELEV= U

BAND 1 MIN= 4 MAX= 80 CA= 8 CB= 16 CA= 8 CB= 16
(P1) (P2)

GAIN A23=000000 A24=000000 A25= 8.0
BIAS B23=000000 B24=000000 B25=-185.9

BAND 2 MIN= 4 MAX= 30 CA= 5 CB= 26 CA= 5 CB= 26
(P1) (P2)

GAIN A23=000000 A24=000000 A25= 5.0
BIAS B23=000000 B24=000000 B25=-100.6

BAND 3 MIN= 4 MAX= 30 CA= 5 CB= 32 CA= 5 CB= 32
(P1) (P2)

GAIN A23=000000 A24=000000 A25= 5.0
BIAS B23=000000 B24=000000 B25=-106.2

BAND 4 MIN= 2 MAX= 40 CA= 10 CB= 13 CA= 10 CB= 13
(P1) (P2)

GAIN A23=000000 A24=000000 A25= 10.0
BIAS B23=000000 B24=000000 B25=-45.0

FROM PFCGAB:

FILE NO. 1 , NO. SCAN LINES READ = 117 , FOR IMAGE NO. 2

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 2 SUN ELEV= 0

5 X 6 AREA

FREQUENCY DISTRIBUTION

PIXEL VALUE	BAND 5		BAND 6		BAND 7		BAND 8	
	FREQ	S	FREQ	S	FREQ	S	FREQ	S
1	1				1	.0	26	.1
2	6				1	.0	62	.3
3	11				5	.0	50	.3
4	33				8	.0	88	.3
5	26				29	.0	151	.4
6	76				15	.1	105	.5
7	85				13	.1	107	.5
8	86				22	.1	193	.4
9	123				15	.1	107	.5
10	14				15	.1	115	.5
11	33				26	.1	144	.5
12	26				52	.2	125	.5
13	76				51	.2	200	.7
14	85				39	.2	240	.0
15	86				36	.2	323	.1
16	123				33	.2	493	.1
17	14				50	.2	706	.4
18	33				16	.2	993	.4
19	26				47	.2	953	.2
20	76				41	.2	1792	.3
21	85				45	.2	2361	.3
22	86				44	.2	2475	.5
23	123				48	.2	2407	.5
24	14				35	.2	2070	.5
25	33				36	.2	1353	.3
26	26				6	.3	332	.1
27	76				60	.3	183	.8
28	85				24	.3	105	.5
29	86				67	.3	85	.4
30	123				510	.5	45	.2
31	14							
32	33							
33	26							
34	76							
35	85							
36	86							
37	123							
38	14							
39	33							

C-10

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C-12

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 2 SUN ELEV# 0

STATISTICS

5 X 6 AREA

	BAND 5			BAND 6			BAND 7			BAND 8		
	5 X 6	SUN		5 X 6	SUN		5 X 6	SUN		5 X 6	SUN	
	AREA	ELEV		AREA	ELEV		AREA	ELEV		AREA	ELEV	
	DATA	CORR		DATA	CORR		DATA	CORR		DATA	CORR	
MIN	12			7			2			1		
MAX	113			123			127			50		
RANGE	101			116			125			49		
MEAN	41.7			48.6			62.8			26.0		
STD DEVIATION	9.7			14.1			13.1			5.7		
MEAN DEVIATION	7.4			11.2			9.0			3.9		
MEDIAN	43			51			64			27		
MODE	43			51			71			27		

C-13

FILE: 1 HERGE TAPE: 10008 IMAGE NO. 2 SUN ELEV= 0

5 X 6 AREA

PERCENT EXCEEDING SELECTED VALUES

	BAND 5	BAND 6	BAND 7	BAND 8
% > 60	2.6	21.1	69.8	.0
% > 90	.2	.7	1.5	.0

FILE: 1	MERGE TAPE: 10008	IMAGE NO. 2	SUN ELEV. 0				
				AREA	TRUNCATED	MOD. STD DEV	AVERAGE PERCENT
				(10 X 11) (5 X 6)			
BAND 5				MIN= 12 MAX=113	MIN= 4 MAX=120	MIN= 10 MAX= 80	MIN= 20 MAX= 60
GAIN				A2= 4.4	A3= 4.4	A4= 4.7	A5= 5.4
BIAS				B2= -12.6	B3= -12.6	B4= -14.1	B5= -17.3
MEAN				P2= 41.7	P3= 41.7	P4= 41.5	P5= 41.2
STD DEV				S2= 9.7	S3= 9.7	S4= 9.1	S5= 8.0
BAND 6				MIN= 7 MAX=123	MIN= 3 MAX=120	MIN= 10 MAX= 20	MIN= 20 MAX= 60
GAIN				A2= 3.0	A3= 3.0	A4= 3.2	A5= 4.1
BIAS				B2= -6.2	B3= -6.2	B4= -8.3	B5= -13.3
MEAN				P2= 48.6	P3= 48.6	P4= 48.1	P5= 44.9
STD DEV				S2= 14.1	S3= 14.1	S4= 13.3	S5= 10.5
BAND 7				MIN= 2 MAX=127	MIN= 5 MAX=120	MIN= 10 MAX= 80	MIN= 20 MAX= 60
GAIN				A2= 3.3	A3= 3.3	A4= 3.7	A5= 4.5
BIAS				B2= -23.4	B3= -23.6	B4= -27.0	B5= -23.0
MEAN				P2= 62.8	P3= 62.7	P4= 61.9	P5= 51.2
STD DEV				S2= 13.1	S3= 13.1	S4= 11.7	S5= 9.4
BAND 8				MIN= 1 MAX= 53	MIN= 2 MAX= 61	MIN= 5 MAX= 40	MIN= 7 MAX= 30
GAIN				A2= 7.4	A3= 7.5	A4= 8.2	A5= 9.3
BIAS				B2= -8.8	B3= -9.0	B4= -10.4	B5= -11.5
MEAN				P2= 20.0	P3= 20.0	P4= 26.1	P5= 25.3
STD DEV				S2= 5.7	S3= 5.7	S4= 5.2	S5= 4.6

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 2 SUN ELEV= 0

BAND 5
GAIN A11= 5.3 A12= 6.9 A13= 8.7 A14= 4.1 A15= 6.6 A16= 3.4 A17= 4.1 A18= 6.6
BIAS B11= -17.5 B12= -23.3 B13= -27.0 B14= -18.0 B15= -22.0 B16= -12.0 B17= -12.0 B18= -20.0

BAND 6
GAIN A11= 3.6 A12= 4.6 A13= 5.7 A14= 3.4 A15= 4.7 A16= 2.8 A17= 3.4 A18= 4.7
BIAS B11= -13.3 B12= -20.6 B13= -26.2 B14= -14.0 B15= -20.0 B16= -7.0 B17= -7.0 B18= -16.0

BAND 7
GAIN A11= 3.9 A12= 5.7 A13= 7.1 A14= 2.9 A15= 4.2 A16= 2.4 A17= 2.9 A18= 4.3
BIAS B11= -30.0 B12= -40.3 B13= -44.8 B14= -14.0 B15= -23.0 B16= -2.0 B17= -2.0 B18= -2.0

BAND 8
GAIN A11= 8.9 A12= 13.2 A13= 16.5 A14= 7.1 A15= 9.8 A16= 6.2 A17= 7.1 A18= 9.8
BIAS B11= -11.6 B12= -16.3 B13= -18.2 B14= -3.0 B15= -8.0 B16= -1.0 B17= -1.0 B18= -1.0

MAX(HI)/MIN(LO) P1/S1 P2/S2
BANDS GAIN A19= 3.0 A26= 2.9 A28= 2.9
1, 2, 2(4) BIAS B19= -6.2 B26= 11.1 B28= -11.1

BANDS GAIN A20= 2.7 A27= 2.7 A29= 2.7
2, 3, 2(4) BIAS B20= -6.2 B27= 16.4 B29= -16.4

ORIGINAL PAGE IS
OF POOR QUALITY

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 2 SUN ELEV# 0
 TRUNCATED @ P2 +/- J S2 TRUNCATED @ P2(NEW) +/- J S2(NEW)

BAND 5					
GAIN , BIAS	A21= 4.9 , B21= -15.1	A22= 5.0 , B22= -15.6			
BAND 6					
GAIN , BIAS	A21= 3.1 , B21= -7.5	A22= 3.1 , B22= -7.6			
BAND 7					
GAIN , BIAS	A21= 4.0 , B21= -31.5	A22= 4.4 , B22= -35.0			
BAND 8					
GAIN , BIAS	A21= 9.2 , B21= -12.6	A22= 10.6 , B22= -14.7			

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 2 SUN ELEV= U

BAND 5 MIN= 4 MAX= 80 CA= 8 CB= 16 CA= 8 CB= 16
(P1) (P2)

GAIN A23=8.0 A25=8.0
BIAS B23=205.9 B25=205.9

BAND 6 MIN= 4 MAX= 80 CA= 5 CB= 26 CA= 5 CB= 26
(P1) (P2)

GAIN A23=5.0 A25=5.0
BIAS B23=113.2 B25=113.2

BAND 7 MIN= 4 MAX= 80 CA= 5 CB= 32 CA= 5 CB= 32
(P1) (P2)

GAIN A23=5.0 A25=5.0
BIAS B23=153.8 B25=153.8

BAND 8 MIN= 2 MAX= 40 CA= 10 CB= 13 CA= 10 CB= 13
(P1) (P2)

GAIN A23=10.0 A25=10.0
BIAS B23=129.7 B25=129.7

FROM PFCGAB:
FILE NO. 1 NO. SCAN LINES READ = 117 FOR IMAGE NO. 3

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 3 SUN ELEV= 0

5 X 6 AREA

FREQUENCY DISTRIBUTION

PIXEL VALUE	BAND 9		BAND 10		BAND 11		BAND 12	
	FREQ	%	FREQ	%	FREQ	%	FREQ	%
0	1	.0					1	.0
1							12	.1
2							79	.3
3							82	.4
4							108	.5
5							118	.7
6							150	.7
7							170	.7
8							127	.6
9							104	.5
10							99	.4
11	15	.0					137	.4
12	29	.1					138	.6
13	77	.3					131	.6
14	75	.3					132	.6
15	44	.2					317	.4
16	128	.6					813	.5
17	128	.6					1246	.7
18	220	1.0					1541	.7
19	137	.6					1770	.7
20	340	1.5					2120	.7
21	788	3.4					2597	.2
22	605	2.6					2776	.2
23	264	1.1					2278	.1
24	994	4.3					1349	.6
25	1492	6.5					1747	.6
26							5772	.2
27	1180	5.2					3629	.2
28	1800	8.4					2893	.2
29	1047	4.6					1833	.1
30	1044	4.6					1123	.6
31	1626	7.1					1101	.5
32	520	2.3					1194	.4
33	1079	4.7					96	.3
34	2216	9.7					93	.3
35	1523	6.7						
36	470	2.1						
37	718	3.1						
38	592	2.6						

97	10	0.1	29	0.0	13	1
98	27	0.0	11	0.0	45	0.0
99	7	0.0	1	0.0	14	0.2
100	22	0.1	10	0.0	15	0.1
101	10	0.0	22	0.0	41	0.1
102	1	0.0	9	0.0	29	0.2
103	11	0.0	27	0.1	4	0.0
104	12	0.1	21	0.1	34	0.1
105	18	0.0	4	0.0	11	0.0
106	25	0.0	14	0.1	6	0.0
107	7	0.0	18	0.1	33	0.1
108	19	0.0	6	0.0	7	0.0
109	4	0.0	26	0.1	15	0.1
110	11	0.0	9	0.0	15	0.1
111	13	0.0	20	0.0	8	0.0
112	14	0.0	3	0.1	2	0.2
113	15	0.0	6	0.0	11	0.0
114	16	0.0	12	0.0	7	0.0
115	17	0.0	4	0.0	9	0.0
116	18	0.0	14	0.1	250	1.1
117	19	0.0	9	0.0		
118	20	0.0	203	0.0		
119	21	0.0		0.0		
120	22	0.0		0.0		
121	23	0.0		0.0		
122	24	0.0		0.0		
123	25	0.0		0.0		
124	26	0.0		0.0		
125	27	0.0		0.0		
126	28	0.0		0.0		
127	29	0.0		0.0		

142

FILE: 1 MERGE TAPE: 17008 IMAGE NO. 3 SUN ELEV= 0

STATISTICS

5 X 6 AREA

	BAND 9			BAND 10			BAND 11			BAND 12		
	5 X 6	SUN		5 X 6	SUN		5 X 6	SUN		5 X 6	SUN	
	AREA	ELEV		AREA	ELEV		AREA	ELEV		AREA	ELEV	
	DATA	CORR		DATA	CORR		DATA	CORR		DATA	CORR	
MIN	2			6			3			0		
MAX	127			127			127			63		
RANGE	125			121			124			63		
MEAN	35.2		P2=	37.8			53.0			22.3		
STD DEVIATION	15.3		52=	17.6			15.9			6.5		
MEAN DEVIATION	8.8			11.5			9.2			4.1		
MEDIAN	32			36			52			22		
MODE	34			41			53			23		

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 3 SUN ELEV. 0

5 X 6 AREA

PERCENT EXCEEDING SELECTED VALUES

	BAND 9 -----	BAND 10 -----	BAND 11 -----	BAND 12 -----
8 > 60	5.4	6.8	15.7	.1
8 > 90	2.1	2.7	3.7	.0

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 3 SUN ELEV= 0

AREA (10 X 11) (5 X 6) TRUNCATED MOD: STD DEV AVERAGE PERCENT

BAND 9 MIN= 2 MAX= 127 MIN= 4 MAX= 120 MIN= 10 MAX= 80 MIN= 20 MAX= 60
 A2= 2.8 A3= 3.3 A4= 4.5 A5= 6.0 A6= 4.2 A7= 4.9 A8= 2.2
 B2= 10.7 B3= 4.8 B4= -4.9 B5= -11.5 B6= -4.6 B7= -8.8 B8= -13.0
 P2= 35.2 P3= 34.5 P4= 33.1 P5= 32.8
 S2= 15.3 S3= 13.1 S4= 9.4 S5= 7.1
 STD DEV

BAND 10 MIN= 6 MAX= 127 MIN= 3 MAX= 120 MIN= 10 MAX= 80 MIN= 20 MAX= 60
 A2= 2.4 A3= 2.8 A4= 3.6 A5= 4.7 A6= 3.6 A7= 3.7 A8= 2.2
 B2= 15.0 B3= 8.6 B4= -2.2 B5= -8.1 B6= -2.6 B7= -3.2 B8= -9.0
 P2= 37.8 P3= 36.8 P4= 35.4 P5= 35.4
 S2= 17.6 S3= 15.1 S4= 11.7 S5= 9.1
 STD DEV

BAND 11 MIN= 3 MAX= 127 MIN= 5 MAX= 120 MIN= 10 MAX= 80 MIN= 20 MAX= 60
 A2= 2.7 A3= 3.1 A4= 4.2 A5= 6.3 A6= 4.0 A7= 4.7 A8= 2.2
 B2= -5.2 B3= -10.9 B4= -20.0 B5= -29.4 B6= -21.1 B7= -25.6 B8= -8.0
 P2= 53.0 P3= 52.2 P4= 50.5 P5= 49.8
 S2= 15.9 S3= 13.8 S4= 10.2 S5= 6.8
 STD DEV

BAND 12 MIN= 0 MAX= 63 MIN= 2 MAX= 61 MIN= 5 MAX= 40 MIN= 7 MAX= 30
 A2= 6.5 A3= 6.6 A4= 8.5 A5= 11.7 A6= 9.8 A7= 10.3 A8= 4.6
 B2= -2.8 B3= -2.7 B4= -7.0 B5= -9.7 B6= -9.3 B7= -9.9 B8= -2.0
 P2= 22.3 P3= 22.3 P4= 22.1 P5= 21.7
 S2= 6.5 S3= 6.5 S4= 5.0 S5= 4.0
 STD DEV

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 3 SUN ELEV= 0

BAND 9
 GAIN A11= 3.3 A12= 5.8 A13= 7.3 A14= 2.3 A15= 3.8 A16= 2.2 A17= 2.3 A18= 3.8
 BIAS B11= 3.1 B12= -13.2 B13= -17.6 B14= -15.0 B15= -19.0 B16= -26.0 B17= -26.0 B18= -28.0

BAND 10
 GAIN A11= 2.9 A12= 4.4 A13= 5.6 A14= 2.2 A15= 3.2 A16= 2.2 A17= 2.2 A18= 3.2
 BIAS B11= 6.2 B12= -9.0 B13= -14.7 B14= -11.0 B15= -14.0 B16= -22.0 B17= -22.0 B18= -22.0

BAND 11
 GAIN A11= 3.2 A12= 5.6 A13= 7.0 A14= 2.2 A15= 2.9 A16= 2.2 A17= 2.2 A18= 2.9
 BIAS B11= -13.2 B12= -30.1 B13= -34.7 B14= -11.0 B15= -17.0 B16= -44.0 B17= -45.0 B18= -45.0

BAND 12
 GAIN A11= 7.8 A12= 12.4 A13= 15.5 A14= 5.4 A15= 7.8 A16= 4.6 A17= 5.4 A18= 7.8
 BIAS B11= -6.0 B12= -12.0 B13= -14.1 B14= -3.0 B15= -6.0 B16= -7.0 B17= -8.0 B18= -12.0

MAX(MI)/MIN(LU)

1, 2, 2(4) BANDS GAIN A19= 2.4 A28= 2.4
 BIAS B19= 15.0 B26= 35.5

2, 3, 2(4) BANDS GAIN A20= 2.2 A29= 2.1
 BIAS B20= 15.0 B27= 31.9

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 3 SUN ELEV= 0

TRUNCATED @ P2 +/- 3 S2
TRUNCATED @ P2(NEW) +/- 3 S2(NEW)

BAND 9					
GAIN , BIAS	A21= 65.2 , B21= 8.0	A22= 85.4 , B22= 8.0			
BAND 10					
GAIN , BIAS	A21= 3.4 , B21= 2.2	A22= 3.8 , B22= -1.2			
BAND 11					
GAIN , BIAS	A21= 3.6 , B21= -15.3	A22= 4.4 , B22= -22.0			
BAND 12					
GAIN , BIAS	A21= 7.9 , B21= -5.7	A22= 9.0 , B22= -7.8			

ORIGINAL

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 3 SUN ELEV= J

BAND 9 MIN= 4 MAX= 80 CA= 8 CB= 16 CA= 8 CB= 16
(P1) (P2)

GAIN A23=..... A24=..... A25= 8.0
BIAS B23=..... B24=..... B25=-153.3

BAND 10 MIN= 4 MAX= 80 CA= 5 CB= 26 CA= 5 CB= 26
(P1) (P2)

GAIN A23=..... A24=..... A25= 5.0
BIAS B23=..... B24=..... B25=-58.9

BAND 11 MIN= 4 MAX= 80 CA= 5 CB= 32 CA= 5 CB= 32
(P1) (P2)

GAIN A23=..... A24=..... A25= 5.0
BIAS B23=..... B24=..... B25=-105.2

BAND 12 MIN= 2 MAX= 40 CA= 10 CB= 13 CA= 10 CB= 13
(P1) (P2)

GAIN A23=..... A24=..... A25= 10.0
BIAS B23=..... B24=..... B25=-93.3

FROM PFCGAS:

FILE NO. 1 , NO. SCAV LINES READ = 117 , FOR IMAGE NO. 4

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 4 SUN ELEV= 0

5 X 6 AREA

FREQUENCY DISTRIBUTION

PIXEL VALUE	BAND 13			BAND 14			BAND 15			BAND 16		
	FREQ	S		FREQ	S		FREQ	S		FREQ	S	
0												
1	15	.1								37	.2	
2	140	.9					3	.0		42	.4	
3	153	.7					13	.0		72	.3	
4	153	.7					13	.0		115	.5	
5	62	.3					21	.1		101	.4	
6	65	.3		.0			31	.1		59	.3	
7	155	.7		.3			58	.3		95	.7	
8	800	5.5		.5			72	.2		160	.3	
9	1544	10.7		.2			36	.2		392	.7	
10	4935	33.5		.2			43	.3		847	.2	
11	3822	26.7		.5			32	.2		1750	.8	
12	3504	24.5		.5			29	.1		2015	.6	
13	675	4.7		.6			32	.1		2379	.8	
14	155	.7		.4			34	.1		2491	.5	
15	65	.3		.4			24	.1		2367	.9	
16	155	.7		.4			28	.1		2084	.1	
17	800	5.5		.3			83	.4		1590	.9	
18	1544	10.7		.3			20	.1		1323	.5	
19	3822	26.7		.9			123	.5		491	.2	
20	3504	24.5		.9			123	.5		395	.7	
21	675	4.7		.7			162	.4		222	.1	
22	155	.7		.3			495	.7		134	.6	
23	800	5.5		.7			365	.2		178	.3	
24	1544	10.7		.2			200	.6		53	.2	
25	3822	26.7		.0			1092	.4		22	.1	
26	675	4.7		.1			1792	.4		177	.0	
27	1544	10.7		.2			866	.5		8	.0	
28	3822	26.7		.5			335	.3				
29	675	4.7		.7			1105	.8				
30	1544	10.7		.7			1792	.4				
31	3822	26.7		.7			1252	.5				
32	675	4.7		.3			1437	.3				
33	1544	10.7		.5			469	.6				
34	3822	26.7		.5			2045	.2				
35	675	4.7		.0			1130	.8				
36	1544	10.7		.5			1521	.3				
37	3822	26.7		.5								
38												

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 4 SUM ELEV# 0

STATISTICS

5 X 6 AREA

	BAND 13			BAND 14			BAND 15			BAND 16		
	5 X 6	SUN	ELEV	5 X 6	SUN	ELEV	5 X 6	SUN	ELEV	5 X 6	SUN	ELEV
	AREA	DATA	CORR	AREA	DATA	CORR	AREA	DATA	CORR	AREA	DATA	CORR
MIN	10			5			0			0		
MAX	50			58			64			37		
RANGE	40			53			64			37		
MEAN	22.4			24.3			35.0			15.2		
P2#	3.3			5.1			7.6			3.8		
S2#	2.4			3.8			5.8			3.0		
STD DEVIATION	22			25			36			15		
MEAN DEVIATION	21			25			39			16		
MEDIAN												
MODE												

C-30

FILE: 1 MERGE TAPE: 10008 IMAGE NO: 4 SUN ELEV: 0

5 A 6 AREA

PERCENT EXCEEDING SELECTED VALUES

	BAND 13	BAND 14	BAND 15	BAND 16
% > 60	.0	.0	.0	.0
% > 90	.0	.0	.0	.0

152

FILE:	1	MERGE TAPE:	10008	IMAGE NO.	4	SUN ELEV	0
<div> <div>AREA</div> <div>(10 X 11) (5 X 6)</div> </div>							

<div> <div>TRUNCATED</div> <div>MOD:</div> </div>							

<div> <div>STD DEV</div> <div>AVERAGE</div> <div>PERCENT</div> </div>							

BAND 13							
	MIN= 16 MAX= 50	MIN= 4 MAX= 120	MIN= 10 MAX= 80	MIN= 20 MAX= 60			
GAIN	A2= 13.1	A3= 13.1	A4= 13.1	A5= 15.9	A6= 19.7	A7= 18.1	A8= 9.8
BIAS	B2= -12.6	B3= -12.6	B4= -12.6	B5= -15.1	B6= -15.9	B7= -15.4	B8= -11.0
MEAN	P2= 22.4	P3= 22.4	P4= 22.4	P5= 23.1			
STD DEV	S2= 3.3	S3= 3.3	S4= 3.3	S5= 2.7			
BAND 14							
	MIN= 5 MAX= 58	MIN= 3 MAX= 120	MIN= 10 MAX= 80	MIN= 20 MAX= 60			
GAIN	A2= 8.4	A3= 8.4	A4= 9.0	A5= 10.5	A6= 12.6	A7= 11.2	A8= 7.3
BIAS	B2= -9.0	B3= -9.0	B4= -10.2	B5= -13.2	B6= -14.1	B7= -12.8	B8= -6.0
MEAN	P2= 24.3	P3= 24.3	P4= 24.5	P5= 25.4			
STD DEV	S2= 5.1	S3= 5.1	S4= 4.8	S5= 4.1			
BAND 15							
	MIN= 0 MAX= 64	MIN= 5 MAX= 120	MIN= 10 MAX= 80	MIN= 20 MAX= 60			
GAIN	A2= 5.6	A3= 5.7	A4= 6.1	A5= 6.6	A6= 8.4	A7= 7.3	A8= 4.9
BIAS	B2= -12.2	B3= -12.6	B4= -14.3	B5= -16.4	B6= -19.8	B7= -17.6	B8= -4.0
MEAN	P2= 35.0	P3= 35.1	P4= 35.4	P5= 35.7			
STD DEV	S2= 7.6	S3= 7.5	S4= 7.0	S5= 6.5			
BAND 16							
	MIN= 0 MAX= 37	MIN= 2 MAX= 61	MIN= 5 MAX= 40	MIN= 7 MAX= 30			
GAIN	A2= 11.1	A3= 11.5	A4= 12.3	A5= 12.6	A6= 16.6	A7= 14.5	A8= 9.5
BIAS	B2= -3.6	B3= -4.1	B4= -5.0	B5= -5.3	B6= -7.5	B7= -4.3	B8= .0
MEAN	P2= 15.2	P3= 15.2	P4= 15.4	P5= 15.4			
STD DEV	S2= 3.8	S3= 3.7	S4= 3.5	S5= 3.4			

153

FILE:	I	MERGE TAPE:	1000H	IMAGE NO.	4	SUN ELEV=	0										
BAND	GAIN	A11=	15.7	A12=	21.6	A13=	27.2	A14=	12.2	A15=	18.3	A16=	12.2	A17=	9.8	A18=	18.3
13	BIAS	B11=	-14.3	B12=	-16.5	B13=	-17.7	B14=	-11.0	B15=	-16.0	B16=	-19.0	B17=	-19.0	B18=	-19.0
BAND	GAIN	A11=	10.1	A12=	13.4	A13=	16.8	A14=	8.3	A15=	11.1	A16=	7.3	A17=	8.3	A18=	11.1
14	BIAS	B11=	-11.6	B12=	-14.7	B13=	-16.6	B14=	-8.0	B15=	-13.0	B16=	-5.0	B17=	-5.0	B18=	-5.0
BAND	GAIN	A11=	6.7	A12=	8.8	A13=	11.0	A14=	5.7	A15=	8.0	A16=	4.9	A17=	5.7	A18=	8.3
15	BIAS	B11=	-16.0	B12=	-20.5	B13=	-23.4	B14=	-7.0	B15=	-16.0	B16=	.0	B17=	.0	B18=	.0
BAND	GAIN	A11=	13.3	A12=	17.3	A13=	21.7	A14=	11.1	A15=	15.1	A16=	9.5	A17=	11.1	A18=	15.1
16	BIAS	B11=	-5.5	B12=	-7.8	B13=	-9.3	B14=	-2.0	B15=	-6.0	B16=	-6.0	B17=	-8.0	B18=	-9.0
BANDS	GAIN	A19=	5.5	A20=	5.1	A21=	5.5	A22=	5.5	A23=	5.5	A24=	5.5	A25=	5.5	A26=	5.5
1, 2, 2(4)	BIAS	B19=	-7.3	B20=	-7.3	B21=	-7.3	B22=	-7.3	B23=	-7.3	B24=	-7.3	B25=	-7.3	B26=	-7.3
BANDS	GAIN	A27=	4.6	A28=	4.6	A29=	4.6	A30=	4.6	A31=	4.6	A32=	4.6	A33=	4.6	A34=	4.6
2, 3, 2(4)	BIAS	B27=	-8.8	B28=	-8.8	B29=	-8.8	B30=	-8.8	B31=	-8.8	B32=	-8.8	B33=	-8.8	B34=	-8.8

MAX(HI)/MIN(LO)	P1/S1	P2/S2
A19= 5.5	A26= 5.5	A28= 4.6
B19= -7.3	B26= -7.3	B28= 9.5
A20= 5.1	A27= 5.1	A29= 4.6
B20= -7.3	B27= -7.3	B29= -8.8

FILE: 1 MERGE TAPE: 10008 IMAGE NO. 4 SUN ELEV= 0

TRUNCATED # P2 +/- 3 S2 TRUNCATED # P2(NEW) +/- 3 S2(NEW)

BAND 13			
GAIN, BIAS	A21= 14.6 , B21= -13.7	A22= 15.3 , B22= -14.1	
BAND 14			
GAIN, BIAS	A21= 9.0 , B21= -10.1	A22= 9.2 , B22= -10.6	
BAND 15			
GAIN, BIAS	A21= 6.3 , B21= -15.1	A22= 6.4 , B22= -15.7	
BAND 16			
GAIN, BIAS	A21= 12.2 , B21= -4.9	A22= 12.5 , B22= -5.1	

BAND 14			

GAIN	MIN	MAX	UNIT
	0.00000000	0.00000000	dB
BIAS	MIN	MAX	UNIT
	0.00000000	0.00000000	V
BAND 15			

GAIN	MIN	MAX	UNIT
	0.00000000	0.00000000	dB
BIAS	MIN	MAX	UNIT
	0.00000000	0.00000000	V
BAND 16			

GAIN	MIN	MAX	UNIT
	0.00000000	0.00000000	dB
BIAS	MIN	MAX	UNIT
	0.00000000	0.00000000	V

26 OCT 76 18:52:09 IDENT LXI ACCOUNT 188126 CARDS IN 25 CARDS OUT 0 PAGES 115 ELAPSED TIME 0 2 5:

-----EXEC-11-UNIVAC-1108-1-V129A-JSC-NASA-HOUSTON-TX-----

C-36

.....EXEC-11-UNIVAC-1108-1-V129A-JSC-NASA-HOUSTON-TX.....

C-37

OF POOR QUALITY

APPENDIX D

SAMPLE PFCGAB OUTPUT

FOR

GODDARD TAPE PROCESSING

SAMPLE OUTPUT: Goddard Tape, file 4 - NO INPUT SUN ANGLE, USE header SUN ANGLE

INPUT IMAGE DATA TAPE INFORMATION:

FORMAT CHANNELS UNIVERSAL
NO. OF PIXELS/LINE 196

HEADER :

COMPUTING SYSTEM ID LACIP NDPF
LAST DIGIT OF YEAR 4
DAY NUMBER OF YEAR 317
DAILY TAPE SERIAL NO. 1
SENSOR ID ERTS MSS
DATE 13/11/74

ERTS MISSION NUMBER NO. 1117
SITE - SAMPLE SEG. 1117
CLOUD COVER PERCENT OF 10X11 MI SEARCH AREA COVERED BY CLOUDS
FLAG INDICATING WHETHER A REFERENCE SCENE HAS BEEN USED FOR REGISTRATION-----FLAG=0
(RTS SCENE/FRAME ID NUMBER FOR NEW DATA)
1 = ERTS MISSION NUMBER
416 = DAY NUMBER RELATIVE TO LAUNCH AT TIME OF OBSERVATION
16 = HOUR AT TIME OF OBSERVATION
35 = MINUTE AT TIME OF OBSERVATION
0 = TENS OF SECONDS AT TIME OF OBSERVATION
DATA QUALITY CLASSIFICATION=0
CENTER OF SAMPLE SEGMENT

LATITUDE (GEODETIC)
DEGREES NORTH = 038
MINUTES = 39

LONGITUDE (GEODETIC)
DEGREES WEST = 097
MINUTES = 49

SUN ELEVATION (DEGREES) 47
SUN AZIMUTH (DEGREES) 135
BIAS FACTORS AND SCALING FACTORS-SIGNED BINARY
FOUR BYTES PER CHANNEL WHERE FIRST TWO BYTES=BIAS FACTOR.
SECOND TWO BYTES=SCALING FACTOR.
CHANNEL 1 BIAS FACTOR= -290.2
CHANNEL 1 SCALING FACTOR= 13.4
CHANNEL 2 BIAS FACTOR= -123.0
CHANNEL 2 SCALING FACTOR= 8.3
CHANNEL 3 BIAS FACTOR= -131.8
CHANNEL 3 SCALING FACTOR= -85.3
CHANNEL 4 BIAS FACTOR= -13.6
CHANNEL 4 SCALING FACTOR= 13.6

FIRST SCAN LINE NO. 1 FIRST PIXEL REFERENCE PT. 1
FROM PFCGAB:

FILE NO. 4 NO. SCAN LINES READ = 117 FOR IMAGE NO. 1

TAPE: 10007
 FILE: 4
 SEGMENT: 1117
 ID: 161616350
 EDAYHRMNS
 LAT= 38: 9 N
 LONG= 97:49 W
 SUN ELEV: 47
 SUN AZ: 135

S X 6 AREA

FREQUENCY DISTRIBUTION

PIXEL VALUE	BAND 1		BAND 2		BAND 3		BAND 4	
	FREQ	S	FREQ	S	FREQ	S	FREQ	S
4							15	.0
5							18	.1
6							9	.0
7							8	.0
8							12	.1
9							34	.1
10							78	.3
11							175	.8
12							384	1.7
13							699	3.0
14							1014	4.4
15							1839	8.0
16							2220	7.7
17							2144	9.3
18							1960	9.5
19							1695	7.4
20							1522	5.3
21							1222	5.0
22							1611	5.5
23							1253	4.5
24							1031	3.3
25							1814	3.5
26							520	1.9
27							295	.4
28							205	.2
29							92	.0
30							38	.0
31							11	.0
32								
33								
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TAPE: 10007
 FILE: 4
 SEGMENT: 1117 ID: 161616350
 EDAYHRMNS LAT= 38: 9 N
 LONG= 97:49 W
 SUN ELEV: 47 SUN AZ: 135

STATISTICS

5 X 6 AREA

	BAND 1			BAND 2			BAND 3			BAND 4		
	5 X 6	SUN		5 X 6	SUN		5 X 6	SUN		5 X 6	SUN	
	AREA	ELEV		AREA	ELEV		AREA	ELEV		AREA	ELEV	
	DATA	CORR		DATA	CORR		DATA	CORR		DATA	CORR	
MIN	20	23		15	17		14	16		4	4	
MAX	53	62		61	72		65	76		34	40	
RANGE	33	39		46	54		51	60		30	35	
MEAN	31.2	37.7	P2=	30.3	35.9		39.3	46.6		20.4	24.1	
STD DEVIATION	2.9	3.5	S2=	4.7	5.6		6.6	7.8		4.2	5.0	
MEAN DEVIATION	2.2	2.6		3.7	4.4		5.5	6.5		3.5	4.1	
MEDIAN	31	36		30	35		39	46		20	23	
MODE	32	37		28	33		36	42		18	21	

10 X 11 SEARCH AREA

	BAND 1		BAND 2		BAND 3		BAND 4	
	5 X 6	SUN	5 X 6	SUN	5 X 6	SUN	5 X 6	SUN
	AREA	ELEV	AREA	ELEV	AREA	ELEV	AREA	ELEV
	DATA	CORR	DATA	CORR	DATA	CORR	DATA	CORR
GAIN	A1=	13.4	8.3	6.6	10.6			
SECOND BIAS	B1=	-21.7	-14.8	-20.0	-8.0			
ARITHMETIC MEAN	P1=	31.2	35.2	39.4	20.1			
STANDARD DEVIATION	S1=	3.2	5.1	6.5	4.0			

TAPE: 10007
 FILE: 4
 SEGMENT: 1:17 ID: 161616350 LAT: 38: 9 N SUN ELEV: 47 SUN AZ: 135

5 X 6 AREA

PERCENT EXCEEDING SELECTED VALUES

	BAND 1	BAND 2	BAND 3	BAND 4
Σ > 60	.0	.0	.1	.0
Σ > 90	.0	.0	.0	.0
Σ > 60* (71)	.0	.0	.0	.0
Σ > 70* (83)	.0	.0	.0	.0
Σ > 80* (95)	.0	.0	.0	.0
Σ > 90* (107)	.0	.0	.0	.0

* = CORRECTED BRIGHTNESS
 * = BRIGHTNESS X SIN 60/SIN SUN ELEV

TAPE: '0007
FILE: 4

SEGMENT: 1117

EDAYHRBNS
ID: 101616350

LAT: 38: 9 N
LONG: 97: 49 W

SUN ELEV: 47

SUN AZ: 135

PFC

FREQUENCY DISTRIBUTION

PFC LEVEL	BAND 1		BAND 2		BAND 3		BAND 4	
	FREQ	%	FREQ	%	FREQ	%	FREQ	%
1	5	.0	3	.0	67	.3	63	.3
2	39	.2	33	.1	80	.3	112	.5
3	147	.6	94	.4	523	2.3	175	.8
4	549	2.4	452	2.0	761	3.3	1083	4.7
5	820	3.6	1345	5.9	2778	12.1	1014	4.4
6	3106	13.5	2698	11.8	2262	9.9	3839	16.7
7	2402	10.5	4629	20.2	2136	9.3	2220	9.7
8	5592	24.4	3478	15.2	3809	13.1	4104	17.9
9	4471	19.5	4353	19.0	1920	8.4	1695	7.4
10	1358	5.9	2358	10.3	3471	15.1	2748	12.0
11	1817	7.9	1524	6.6	2717	11.8	1611	7.0
12	752	3.3	760	3.3	1313	5.7	2284	10.0
13	1189	5.2	138	.6	1386	6.0	814	3.5
14	282	1.2	512	2.2	335	1.5	823	3.6
15	170	.7	286	1.2	125	.5	205	.9
16	233	1.0	269	1.2	49	.2	142	.6

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TAPE: 10007 SEGMENT: 1117 ID: 161616350 EDAYHRMNS LAT= 38: 9 N SUN ELEV: 47 SUN AZ: 135
 FILE: 4

 (10 X 11) (5 X 6) AREA TRUNCATED MOD STD DEV AVERAGE PERCENT -----

BAND 1 MIN= 20 MAX= 53 MIN= 4 MAX= 120 MIN= 10 MAX= 80 MIN= 20 MAX= 60
 GAIN A1= 13.4 A2= 14.6 A3= 14.6 A4= 14.6 A5= 14.6 A6= 21.8 A7= 19.2 A8= 12.8 A9= 20.1 A10= 16.1
 BIAS B1= -21.7 B2= -22.4 B3= -22.4 B4= -22.4 B5= -22.4 B6= -25.4 B7= -24.6 B8= -24.0 B9= -24.8 B10= -23.2
 MEAN P1= 31.2 P2= 31.2 P3= 31.2 P4= 31.2 P5= 31.2
 STD DEV S1= 3.2 S2= 2.9 S3= 2.9 S4= 2.9 S5= 2.9

BAND 2 MIN= 15 MAX= 61 MIN= 3 MAX= 120 MIN= 10 MAX= 80 MIN= 20 MAX= 60
 GAIN A1= 8.3 A2= 9.0 A3= 9.0 A4= 9.0 A5= 9.1 A6= 13.5 A7= 11.6 A8= 7.8 A9= 12.4 A10= 10.0
 BIAS B1= -14.8 B2= -16.1 B3= -16.1 B4= -16.1 B5= -16.2 B6= -20.8 B7= -19.3 B8= -18.0 B9= -20.0 B10= -17.4
 MEAN P1= 30.2 P2= 30.3 P3= 30.3 P4= 30.3 P5= 30.3
 STD DEV S1= 5.1 S2= 4.7 S3= 4.7 S4= 4.7 S5= 4.7

BAND 3 MIN= 14 MAX= 65 MIN= 5 MAX= 120 MIN= 10 MAX= 80 MIN= 20 MAX= 60
 GAIN A1= 6.6 A2= 6.5 A3= 6.5 A4= 6.5 A5= 6.5 A6= 9.7 A7= 7.7 A8= 6.9 A9= 9.9 A10= 7.9
 BIAS B1= -20.0 B2= -19.5 B3= -19.5 B4= -19.5 B5= -19.7 B6= -26.1 B7= -22.7 B8= -21.0 B9= -26.4 B10= -23.2
 MEAN P1= 39.4 P2= 39.3 P3= 39.3 P4= 39.3 P5= 39.3
 STD DEV S1= 6.5 S2= 6.6 S3= 6.6 S4= 6.6 S5= 6.6

BAND 4 MIN= 4 MAX= 34 MIN= 2 MAX= 61 MIN= 5 MAX= 40 MIN= 7 MAX= 30
 GAIN A1= 10.6 A2= 10.1 A3= 10.1 A4= 10.1 A5= 10.4 A6= 15.2 A7= 12.3 A8= 9.8 A9= 15.9 A10= 12.7
 BIAS B1= -8.0 B2= -7.7 B3= -7.7 B4= -7.7 B5= -8.0 B6= -11.9 B7= -10.0 B8= -6.0 B9= -12.1 B10= -10.1
 MEAN P1= 20.1 P2= 20.4 P3= 20.4 P4= 20.4 P5= 20.3
 STD DEV S1= 4.0 S2= 4.2 S3= 4.2 S4= 4.2 S5= 4.1

TAPE: 10007
 FILE: 4
 SEGMENT: 1117
 ID: 141616350
 EDAYHRMNS
 LAT= 38:09 N
 LONG= 97:49 W
 SUN ELEV: 47
 SUN AZ: 135

BAND 1
 GAIN A11= 17.5 A12= 23.0 A13= 28.8 A14= 17.1 A15= 21.3 A16= 12.8 A17= 17.1 A18= 21.3
 BIAS B11= -23.9 B12= -25.7 B13= -26.8 B14= -25.3 B15= -26.0 B16= -27.0 B17= -27.0 B18= -28.0

BAND 2
 GAIN A11= 10.8 A12= 13.9 A13= 17.9 A14= 10.2 A15= 12.8 A16= 7.8 A17= 10.2 A18= 12.8
 BIAS B11= -18.4 B12= -21.1 B13= -27.9 B14= -21.3 B15= -22.0 B16= -24.0 B17= -24.0 B18= -24.0

BAND 3
 GAIN A11= 7.8 A12= 9.3 A13= 11.6 A14= 8.8 A15= 10.7 A16= 6.9 A17= 8.8 A18= 10.7
 BIAS B11= -22.8 B12= -25.5 B13= -28.3 B14= -25.0 B15= -27.0 B16= -25.0 B17= -26.0 B18= -28.0

BAND 4
 GAIN A11= 12.2 A12= 14.8 A13= 18.4 A14= 13.5 A15= 16.0 A16= 9.8 A17= 13.5 A18= 16.0
 BIAS B11= -9.8 B12= -11.7 B13= -13.4 B14= -11.0 B15= -13.0 B16= -14.0 B17= -14.0 B18= -15.0

MAX(HI)/MIN(LO)
 BANDS GAIN A19= 5.1
 1, 2, 2(4) BIAS B19= -15.5
 BANDS GAIN A20= 5.1
 2, 3, 2(4) BIAS B20= -15.5
 P1/S1
 A26= 4.2
 B26= -14.3
 P2/S2
 A28= 4.0
 B28= -8.7
 A29= 4.4
 B29= -33.1

TAPE: 10007
FILE: 4

SEGMENT: 1117

ID: 161614350

EDAYHRMNS
LAT= 38: 9 N
LONG= 97:49 W

SUN ELEV: 47 SUN AZ: 135

TRUNCATED @ P2(NEW) +/- 3 S2(NEW)

TRUNCATED @ P2 +/- 3 S2

BAND 1

GAIN , BIAS

A21= 15.2 , B21= -22.7

A22= 15.2 , B22= -22.7

BAND 2

GAIN , BIAS

A21= 9.7 , B21= -16.9

A22= 9.8 , B22= -17.0

BAND 3

GAIN , BIAS

A21= 6.5 , B21= -19.7

A22= 6.5 , B22= -19.7

BAND 4

GAIN , BIAS

A21= 10.2 , B21= -7.9

A22= 10.2 , B22= -7.9

TAPE: 10007
 FILE: 4
 SEGMENT: 1117
 ID: 161616350
 EDAYHRMNS
 LAT= 38: 9 N
 LONG= 97:49 W
 SUN ELEV: 47
 SUN AZ: 135

BAND 1 MIN= 3 MAX= 68 CA= 8 CB= 16 CA= 8 CB= 16
 (P1) (P2)

GAIN
 BIAS
 A23= 14.6
 B23= -22.4
 A24= 8.0
 B24= -121.7
 A25= 8.0
 B25= -121.8

BAND 2 MIN= 3 MAX= 68 CA= 5 CB= 26 CA= 5 CB= 26
 (P1) (P2)

GAIN
 BIAS
 A23= 9.0
 B23= -16.1
 A24= 5.0
 B24= -21.2
 A25= 5.0
 B25= -21.4

BAND 3 MIN= 3 MAX= 68 CA= 5 CB= 32 CA= 5 CB= 32
 (P1) (P2)

GAIN
 BIAS
 A23= 4.5
 B23= -19.5
 A24= 5.0
 B24= -36.8
 A25= 5.0
 B25= -36.6

BAND 4 MIN= 2 MAX= 34 CA= 10 CB= 13 CA= 10 CB= 13
 (P1) (P2)

GAIN
 BIAS
 A23= 19.1
 B23= -7.7
 A24= 10.0
 B24= -71.2
 A25= 10.0
 B25= -73.7

SAMPLE OUTPUT: Goddard Tape, file 4 - INPUT SUN ANGLE = 60

INPUT IMAGE DATA TAPE INFORMATION:

FORMAT UNIVERSAL
NO. OF CHANNELS 4
NO. OF PIXELS/LINE 196

HEADER :

COMPUTING SYSTEM ID LACIP NDPF
LAST DIGIT OF YEAR 4
DAY NUMBER OF YEAR 317
DAILY TAPE SERIAL NO. 1
SENSOR ID ERTS MSS
DATE 13/11/74
SITE 1117
MISSION NUMBER NO. 1117
SITE 1117
CLOUD PERCENT OF 10X11 NM SEARCH AREA COVERED BY CLOUDS
FLAG INDICATING WHETHER A REFERENCE SCENE HAS BEEN USED FOR REGISTRATION-----FLAG=0
(RTS SCENE/FRAME ID NUMBER FOR NEW DATA)
1 = ERTS MISSION RELATIVE TO LAUNCH AT TIME OF OBSERVATION
16 = DAY NUMBER RELATIVE TO LAUNCH AT TIME OF OBSERVATION
35 = HOUR AT TIME OF OBSERVATION
0 = MINUTE AT TIME OF OBSERVATION
0 = TENS OF SECONDS AT TIME OF OBSERVATION
DATA QUALITY CLASSIFICATION=0
CENTER OF SAMPLE SEGMENT
LATITUDE (GEODETTIC)
DEGREES NORTH = 038
MINUTES = 39
LONGITUDE (GEODETTIC)
DEGREES WEST = 097
MINUTES = 49
SUN ELEVATION (DEGREES) 47
SUN AZIMUTH (DEGREES) 135
BIAS FACTORS AND SCALING FACTORS--SIGNED BINARY
FOUR BYTES PER CHANNEL--WHERE FIRST TWO BYTES=BIAS FACTOR.
SECOND TWO BYTES=SCALING FACTOR.
CHANNEL 1 BIAS FACTOR=-290.2
CHANNEL 1 SCALING FACTOR=13.4
CHANNEL 2 BIAS FACTOR=-123.0
CHANNEL 2 SCALING FACTOR=-131.8
CHANNEL 3 BIAS FACTOR=-131.8
CHANNEL 3 SCALING FACTOR=-85.3
CHANNEL 4 BIAS FACTOR=-85.3
CHANNEL 4 SCALING FACTOR=10.6

FIRST SCAN LINE NO. 1 FIRST PIXEL REFERENCE PT. 1
FROM PFCGAR:

FILE NO. 4 , NO. SCAN LINES READ = 117 , FOR IMAGE NO. 1

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TAPE: 10007
 FILE: 4
 SEGMENT: 1117
 ID: 161616350
 EDAYHRMMS
 LAT= 38: 9 N
 LONG= 97:49 W
 SUN ELEV: 60
 SUN AZ: 135

5 X 6 AREA

FREQUENCY DISTRIBUTION

PIXEL VALUE	BAND 1		BAND 2		BAND 3		BAND 4	
	FREQ	%	FREQ	%	FREQ	%	FREQ	%
4							1	0
5							15	1
6							18	1
7							9	0
8							8	0
9							12	1
10							34	1
11							78	3
12							175	8
13							384	17
14							699	30
15							1014	44
16							1839	80
17							2000	77
18							2220	93
19							2144	85
20							1960	74
21							1695	67
22							1522	53
23							1221	50
24							1611	55
25							1253	52
26							1814	33
27							528	20
28							295	10
29							205	4
30							38	0
31							11	0
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TAPE: 10007
 FILE: 4
 SEGMENT: 1117 ID: 161616350 EDAYHRMNS LAT= 38: 9 N SUN ELEV: 60 SUN AZ: 135
 LONG= 97:49 W

STATISTICS

5 X 6 AREA

	BAND 1			BAND 2			BAND 3			BAND 4		
	5 X 6 AREA DATA	SUN CORR	ELEV	5 X 6 AREA DATA	SUN CORR	ELEV	5 X 6 AREA DATA	SUN CORR	ELEV	5 X 6 AREA DATA	SUN CORR	ELEV
HIN	20	20		15	15		14	14		4	4	
MAX	53	53		61	61		65	65		34	34	
RANGE	33	33		46	46		51	51		30	30	
MEAN	31.2	31.2		30.3	30.3		39.3	39.3		20.4	20.4	
STD DEVIATION	2.9	2.9		4.7	4.7		6.6	6.6		4.2	4.2	
MEAN DEVIATION	2.2	2.2		3.7	3.7		5.5	5.5		3.5	3.5	
MEDIAN	31	31		30	30		39	39		20	20	
MODE	32	32		28	28		36	36		18	18	

10 X 11 SEARCH AREA

	BAND 1			BAND 2			BAND 3			BAND 4		
	10 X 11 SEARCH AREA			10 X 11 SEARCH AREA			10 X 11 SEARCH AREA			10 X 11 SEARCH AREA		
GAIN	A1=	23.4		13.3			16.6			20.6		
SECOND BIAS	B1=	-31.7		-24.3			-30.3			-13.0		
ARITHMETIC MEAN	P1=	37.2		33.9			37.7			19.2		
STANDARD DEVIATION	S1=	1.8		3.2			2.6			2.1		

TAPE: 10007 SEGMENT: 1117 ID: 161616350 E DAYHRMNS LAT= 38: 9 N SUN ELEV: 60 SUN AZ: 135
 FILE: 4

5 X 6 AREA

PERCENT EXCEEDING SELECTED VALUES

	BAND 1	BAND 2	BAND 3	BAND 4
z > 60	.0	.0	.1	.0
z > 90	.0	.0	.0	.0
z > 60* (60)	.0	.0	.1	.0
z > 70* (70)	.0	.0	.0	.0
z > 80* (60)	.0	.0	.0	.0
z > 90* (90)	.0	.0	.0	.0

* = CORRECTED BRIGHTNESS
 * = BRIGHTNESS * SIN 60/SIN SUN ELEV

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 SUN AZ: 135

PFC

FREQUENCY DISTRIBUTION

PFC LEVEL	BAND 1		BAND 2		BAND 3		BAND 4	
	FREQ	%	FREQ	%	FREQ	%	FREQ	%
1	17131	74.7	28F8	12.2	2135	9.3	734	3.2
2	135A	5.9	1817	7.7	67A	3.0	699	3.0
3			1755	7.7	1396	6.1	1014	4.4
4	1817	7.9	5063	22.1	503	2.2	1839	8.0
5	752	3.3	1289	5.6	1759	7.7		
6			1743	7.6	351	1.5	2000	8.7
7	749	3.3	2612	11.4	1785	7.8	2220	9.7
8	440	1.9	814	3.5	692	3.0	2144	9.3
9			2088	9.1	1316	5.7		
10	282	1.2	980	4.3	1001	4.4	1960	8.5
11	170	.7	70	.3	1011	4.4	1695	7.4
12			890	3.8	909	4.0	1526	6.7
13	128	.6	138	.6	1351	5.9	1222	5.3
14			512	2.2	1397	6.1		
15			146	.6	723	3.2	1611	7.0
16	105	.5	409	1.8	5925	25.8	4268	18.6

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	AREA		TRUNCATED		MOD		AVERAGE		PERCENT	
	(10 X 11)	(5 X 6)	MIN=	MAX=	MIN=	MAX=	STD DEV			
BAND 1			MIN= 20 MAX= 53	MIN= 4 MAX= 120	MIN= 10 MAX= 80	MIN= 20 MAX= 60				
	GAIN	A1= 23.4 A2= 14.6 A3= 14.6 A4= 14.6 A5= 14.6	A6= 14.6 A7= 19.2 A8= 12.4 A9= 35.1 A10= 28.1	B1= -31.7 B2= -22.4 B3= -22.4 B4= -22.4 B5= -22.4	B6= -25.4 B7= -24.6 B8= -24.0 B9= -33.5 B10= -32.6					
	MEAN	P1= 37.2 P2= 31.2 P3= 31.2 P4= 31.2 P5= 31.2								
	STD DEV	S1= 1.8 S2= 2.9 S3= 2.9 S4= 2.9 S5= 2.9								
BAND 2			MIN= 15 MAX= 61	MIN= 3 MAX= 120	MIN= 10 MAX= 80	MIN= 20 MAX= 60				
	GAIN	A1= 13.3 A2= 9.0 A3= 9.0 A4= 9.0 A5= 9.1	A6= 13.5 A7= 11.6 A8= 7.8 A9= 19.9 A10= 14.0	B1= -24.3 B2= -16.1 B3= -16.1 B4= -16.1 B5= -16.2	B6= -20.8 B7= -19.3 B8= -18.0 B9= -27.5 B10= -25.9					
	MEAN	P1= 33.9 P2= 30.3 P3= 30.3 P4= 30.3 P5= 30.3								
	STD DEV	S1= 3.2 S2= 4.7 S3= 4.7 S4= 4.7 S5= 4.7								
BAND 3			MIN= 14 MAX= 65	MIN= 5 MAX= 120	MIN= 10 MAX= 80	MIN= 20 MAX= 60				
	GAIN	A1= 16.6 A2= 6.5 A3= 6.5 A4= 6.5 A5= 6.5	A6= 9.7 A7= 7.7 A8= 6.9 A9= 24.9 A10= 19.9	B1= -30.0 B2= -19.5 B3= -19.5 B4= -19.5 B5= -19.7	B6= -26.1 B7= -27.7 B8= -21.0 B9= -37.6 B10= -31.3					
	MEAN	P1= 37.7 P2= 39.3 P3= 39.3 P4= 39.3 P5= 39.3								
	STD DEV	S1= 2.6 S2= 6.6 S3= 6.6 S4= 6.6 S5= 6.6								
BAND 4			MIN= 4 MAX= 34	MIN= 2 MAX= 61	MIN= 5 MAX= 40	MIN= 7 MAX= 30				
	GAIN	A1= 20.6 A2= 10.1 A3= 10.1 A4= 10.1 A5= 10.4	A6= 15.2 A7= 12.3 A8= 9.6 A9= 30.9 A10= 24.7	B1= -13.0 B2= -7.7 B3= -7.7 B4= -7.7 B5= -8.0	B6= -11.9 B7= -16.0 B8= -6.0 B9= -15.1 B10= -14.0					
	MEAN	P1= 19.2 P2= 20.4 P3= 20.4 P4= 20.4 P5= 20.4								
	STD DEV	S1= 2.1 S2= 4.2 S3= 4.2 S4= 4.2 S5= 4.1								

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ORIGINAL PAGE IS
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BAND 1

GAIN	A11= 17.5	A12= 23.0	A13= 28.8	A14= 17.1	A15= 21.3	A16= 12.8	A17= 17.1	A18= 21.3
BIAS	B11= -23.9	B12= -25.7	B13= -26.8	B14= -25.0	B15= -26.0	B16= -27.0	B17= -27.0	B18= -28.0

BAND 2

GAIN	A11= 10.8	A12= 13.9	A13= 17.8	A14= 10.2	A15= 12.8	A16= 7.8	A17= 10.2	A18= 12.8
BIAS	B11= -18.4	B12= -21.1	B13= -22.8	B14= -21.0	B15= -22.0	B16= -24.0	B17= -24.0	B18= -24.0

BAND 3

GAIN	A11= 7.8	A12= 9.3	A13= 11.6	A14= 8.6	A15= 10.7	A16= 6.9	A17= 8.8	A18= 10.7
BIAS	B11= -22.8	B12= -25.5	B13= -25.3	B14= -25.0	B15= -27.0	B16= -25.0	B17= -24.0	B18= -28.0

BAND 4

GAIN	A11= 12.2	A12= 14.8	A13= 18.4	A14= 13.5	A15= 16.0	A16= 9.8	A17= 13.5	A18= 16.0
BIAS	B11= -9.8	B12= -11.7	B13= -13.4	B14= -11.0	B15= -13.0	B16= -14.0	B17= -14.0	B18= -15.0

MAX(HI)/MIN(LO)

P1/S1

P2/S2

BANDS

1, 2, 2(4)

GAIN	A19= 5.1	A26= 8.9	A28= 4.0
BIAS	B19= -15.5	B26= -197.7	B28= -8.7

BANDS

2, 3, 2(4)

GAIN	A20= 5.1	A27= 9.0	A29= 4.4
BIAS	B20= -15.5	B27= -203.5	B29= -33.1

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TRUNCATED @ P2 +/- 3 S2

 TRUNCATED @ P2 (NEW) +/- 3.52 (NEW)

BAND 1			
GAIN , BIAS	A21= 15.2 , B21= -22.7	A22= 15.2 , B22= -22.7	
BAND 2			
GAIN , BIAS	A21= 9.7 , B21= -16.9	A22= 9.8 , B22= -17.0	
BAND 3			
GAIN , BIAS	A21= 6.5 , B21= -19.7	A22= 6.5 , B22= -19.7	
BAND 4			
GAIN , BIAS	A21= 10.2 , B21= -7.9	A22= 10.2 , B22= -7.9	

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BAND 1	MIN= 4	MAX= 80	CA= 8	CB= 16	CA= 8	CB= 16
			(P1)		(P2)	
GAIN	A23= 14.6		A24= 8.0		A25= 8.0	
BIAS	B23= -22.4		B24= -169.4		B25= -121.8	
BAND 2	MIN= 4	MAX= 80	CA= 5	CB= 26	CA= 5	CB= 26
			(P1)		(P2)	
GAIN	A23= 9.0		A24= 5.0		A25= 5.0	
BIAS	B23= -16.1		B24= -39.6		B25= -21.4	
BAND 3	MIN= 4	MAX= 80	CA= 5	CB= 32	CA= 5	CB= 32
			(P1)		(P2)	
GAIN	A23= 6.5		A24= 5.0		A25= 5.0	
BIAS	B23= -19.5		B24= -28.6		B25= -36.6	
BAND 4	MIN= 2	MAX= 40	CA= 10	CB= 13	CA= 10	CB= 13
			(P1)		(P2)	
GAIN	A23= 10.1		A24= 10.0		A25= 10.0	
BIAS	B23= -7.7		B24= -62.1		B25= -73.7	